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Cancer

in Massachusetts Women
1982 - 1994

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CANCER
IN
MASSACHUSETTS WOMEN
1982 - 1994

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INTRODUCTION

“Cancer in Massachusetts Women” is a report from the Massachusetts Department of Public Health which provides information about the most common cancers in women in Massachusetts. Although the idea of cancer can be frightening, survival rates from cancer are better than ever. Learning about your risk and how to reduce it and understanding the methods of early detection are the best ways to protect yourself.

Before you learn about specific types of cancer, you may want some basic information:

Q• What is cancer?

A• Cancer is a general name for a variety of diseases where abnormal cells grow out of control. Cancer cells may grow faster than normal cells and spread through the body, destroying healthy parts of the body.

Q• Why do people get cancer?

A• No one really knows exactly why some people get cancer and some don't. Some cancers do seem to run in families (these cancers are also called *genetic* or *inherited*), and some cancers seem to come from specific activities, like smoking or being exposed to lots of radiation.

Q• Is there anything I can do to keep from getting cancer?

A• You can improve your chances of **not** getting cancer by not smoking, by wearing sunscreen, by eating a healthy diet, and by getting adequate physical activity. This doesn't mean you won't get cancer, but it reduces your *risk* (your chance of developing cancer). In this report, you will also learn about other things that may increase your chances of developing cancer (*risk factors*), and ways to reduce your risk of some types of cancer. However, much of the time there is nothing we can do to prevent cancer.

Q• Is there anything else I can do to protect myself?

A• Yes! There are tests (called *early detection methods*) that can find cancer early. In many cases, people whose cancers are found early can be more easily treated and will survive longer, and their cancers are less likely to return. Some early detection tests include Pap tests for cervical cancer and mammograms for breast cancer. This report will tell you why, how, and when to get these tests.

How to use this report:

How can you use these reports and charts in a way that makes sense for you?

Here are some definitions and key words to look for:

- **Incidence:** the total number of new cancers reported.
- **Mortality:** the number of deaths from a type of cancer.

Incidence and mortality data are given in several ways. First, we can look at the actual **number** of people who have been diagnosed with or have died of a type of cancer. We can then look at **percentages** -- what proportion of all cancers diagnosed in women were breast cancers, for example. Finally, we can look at incidence and mortality **rates**, which tell us how many people were diagnosed with or died of a type of cancer in a given size population. (The population usually used is “per 100,000”; here, rates are given “per 100,000 females”.)

Two types of rates are used in this report:

- **Age-adjusted rates** are overall rates which take into account how old someone was when she was diagnosed with or died of a type of cancer. We can compare age-adjusted rates for different types of cancers to see which cancers have the highest rates, and we can compare age-adjusted rates for the same cancer over time to see how the rate has changed.
- **Age-specific rates** look at the number of people who have been diagnosed with or have died of a type of cancer in a particular age group, and allow us to compare how the rate of cancer changes with age.

More information about rates is given in the Glossary, on pages 58-59.

Some cancer-related terms to know are:

- **Origin or primary site:** the organ or part of the body where a cancer starts.
- **Invasive:** a cancer which has spread beyond the layer of cells where it started into the tissue around it, and has the potential to spread to other parts of the body.
- **Metastatic:** a cancer which has spread from the site where it started to other parts of the body, such as to the bone or the liver.
- **Staging** describes how far along a cancer has developed in a person’s body. This is important to know, because treatment will vary depending on the stage at diagnosis. **Treatment is usually more successful when cancers are found early.** This is why early detection greatly improves a person’s chances of surviving cancer.

Cancer stages are:

In situ: the earliest stage of cancer, before the cancer has spread, when it is limited to a small number of cells and has not invaded the organ itself.

Localized: cancer found only in the body part (organ) where it began; it hasn’t spread to any other parts.

Regional: the cancer has spread beyond the original point where it started to the nearest surrounding parts of the body (other tissues).

Distant: the cancer has spread to parts of the body far away from the original point where it began. This is the most difficult stage to treat, since the cancer has spread through the body.

Unstaged: there is not enough information about the cancer to assign a stage.

Other definitions are given in the Glossary at the end of this book (pages 58-59).

How this report is organized:

This report is organized into several sections:

- First is an **overall** look at the impact of cancer on women in Massachusetts.
- Next, **seven specific cancers** are reviewed: breast, cervical, colorectal, lung, melanoma, ovarian and uterine. Statistics on these cancers, including how many women are diagnosed with a type of cancer (**incidence**) and how many women die of it (**mortality**) are provided.

For each of these cancers, information is included on:

Risk factors -- things that can increase your chances of developing that cancer.

Prevention -- what you can do to help reduce your chance of developing that cancer.

Screening -- tests that are given routinely at certain times or ages to people with no symptoms of disease. Screening can identify potential disease very early when treatment is most successful.

Symptoms -- an indication that something may be wrong. Having one or more of these warning signs doesn't necessarily mean you have cancer, but you should see your doctor for an exam and/or tests.

Detection -- the tests and exams a doctor uses to decide whether or not a person has cancer.

Treatment -- medicines or surgery a doctor can use to remove or reduce a cancer.

- The last section of the report contains further information on **how you can learn more** about these cancers.
- There is also a **glossary**, which contains explanations of the statistical terms used in this report.

Data sources used in this report:

The Massachusetts Cancer Registry (MCR): All Massachusetts incidence and staging data are provided by the Massachusetts Cancer Registry, which is part of the Massachusetts Department of Public Health (MDPH). The MCR collects reports of all cancer cases newly diagnosed in Massachusetts residents, and summarizes cancer incidence in its annual report. The most recent year of Massachusetts cancer incidence data available at this time is 1994.

The Registry of Vital Records and Statistics: All Massachusetts cancer death data are from the MDPH Registry of Vital Records and Statistics, which has legal responsibility for collecting and reporting deaths of Massachusetts residents. The most recent year of Massachusetts cancer mortality data available at this time is 1995.

Surveillance, Epidemiology and End Results (SEER): National data on cancer incidence, mortality, staging and survival are from the National Cancer Institute's SEER Program. The SEER Program is the best source of information on national cancer incidence. It currently includes data from population-based cancer registries in 11 states and geographic areas, covering approximately 14% of the United States population. SEER also publishes national mortality data from the National Center for Health Statistics. The most recent year of SEER data available at this time is 1994.

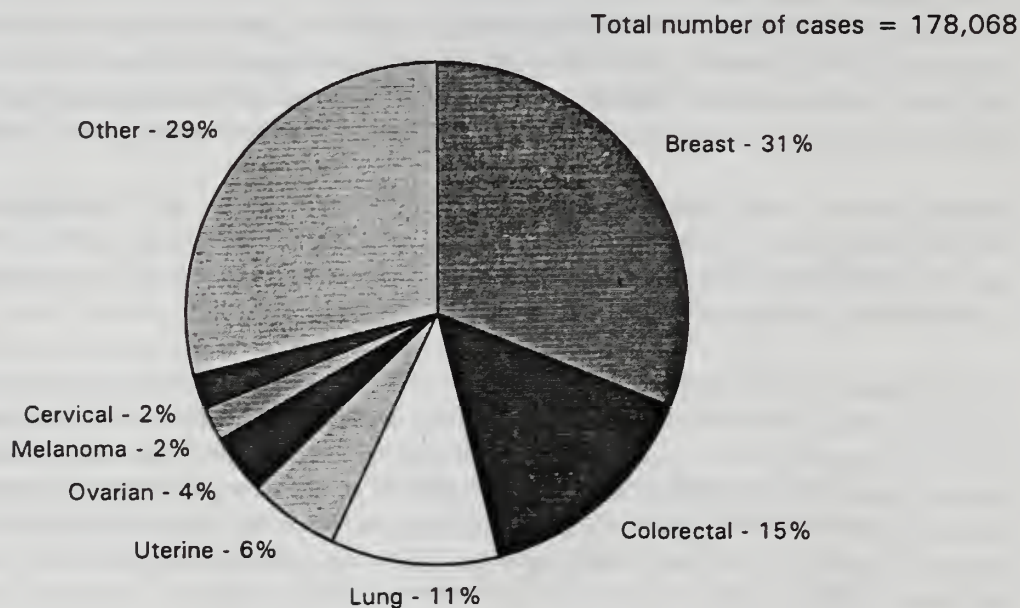
SUMMARY DATA

INCIDENCE

Between 1982 and 1994, 178,068 women in Massachusetts were diagnosed with new cancers. (This number excludes skin cancers other than melanomas.) Breast cancer was the leading type of cancer diagnosed, with 55,320 cases reported during this period, accounting for 31% of all cancers diagnosed. In descending order, the next most common cancers diagnosed were colorectal, lung and uterine cancers. Ovarian cancer, melanoma and cervical cancer each represent fewer than 5% of new cancer diagnoses.

Table 1. Cancer Incidence in Massachusetts Females 1982-1994		
Type of Cancer:	Number of New Cases	Percentage of New Cases
Breast	55,320	31.1%
Colorectal	26,565	14.9%
Lung	19,614	11.0%
Uterine	10,432	5.9%
Ovarian	7,004	3.9%
Melanoma	3,928	2.2%
Cervical	3,910	2.2%
Other	51,295	28.8%
Total	178,068	100.0%

Figure 1. Cancer Incidence in Massachusetts Females
1982-1994



MORTALITY

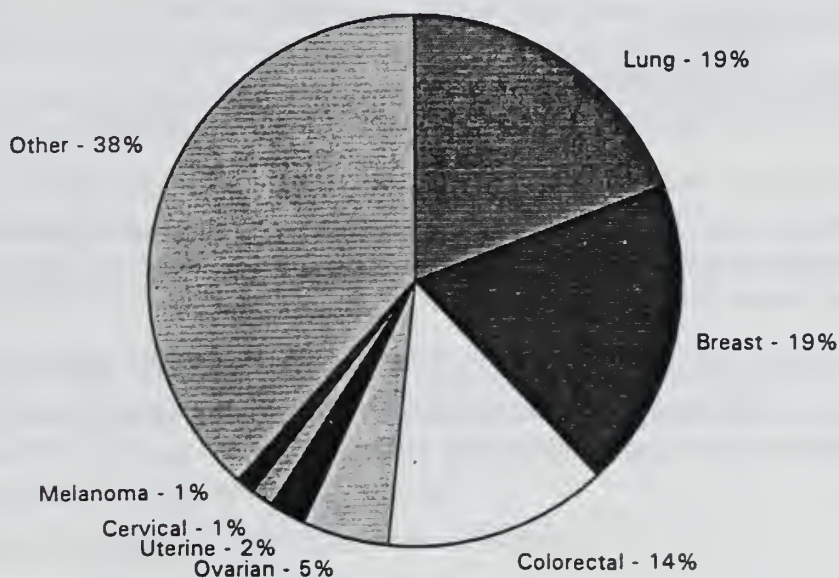
Between 1982 and 1995, 93,816 Massachusetts women died of cancer. Lung cancer has become the leading cause of cancer deaths in women in recent years, although it is only the third most commonly *diagnosed* cancer. It is now responsible for 19% of all cancer deaths, slightly ahead of breast cancer. Ovarian cancer is responsible for 5.1% of cancer deaths in women (the fourth highest mortality), versus 3.9% of new cases (the fifth highest incidence).

**Table 2. Cancer Mortality in Massachusetts Females
1982-1995**

Type of Cancer:	Number of Deaths	Percentage of Deaths
Lung	17,866	19.0%
Breast	17,790	19.0%
Colorectal	12,902	13.8%
Ovarian	4,781	5.1%
Uterine	2,291	2.4%
Cervical	1,295	1.4%
Melanoma	1,046	1.1%
Other	35,845	38.2%
Total	93,816	100.0%

**Figure 2. Cancer Mortality in Massachusetts Females
1982-1995**

Total number of deaths = 93,816



BREAST CANCER

RISK FACTORS

Breast Cancer Risk Factors:

- Growing older (Risk increases with age, especially after age 50.)
- Personal history of breast cancer
- Family (mother, sister or daughter) history of breast cancer, especially if it was detected pre-menopausally (before the change of life)
- Radiation therapy to the chest, especially from age 11 until age 30 (example: radiation used to treat Hodgkin's Disease)
- Never giving birth
- First childbirth after age 30
- Menstruating since age 12 or younger
- Late age (older than 55) at menopause (change of life)
- Having inherited a mutation in breast cancer susceptibility genes such as BRCA1 or BRCA2

Possible Risk Factors:

- Having more than three alcoholic drinks per day
- Estrogen taken post-menopausally (after the change of life)
- Eating a high-fat diet
- Not enough physical activity
- Exposure to pesticides (DDT) or poly-chlorinated biphenyls (PCBs)

Note: 75% of breast cancers occur in women who have no risk factors other than age. It is estimated that all known factors other than being female and growing older account for only 20% to 30% of breast cancer incidence.

In general, benign breast lumps do not increase a woman's risk of developing breast cancer. However, any lump that you feel should be checked by a doctor.

PREVENTION

We do not know how to prevent breast cancer.

To Reduce the Risk of Breast Cancer:

- Maintain recommended weight
- Limit alcoholic drinks
- Increase physical activity
- Eat olive oil rather than other forms of oil

SCREENING

Women aged 20-39 should:

- Perform breast self-exam (BSE) monthly, 3 to 5 days after the end of each period or on the same day each month if post-menopausal (after the change of life)
- Have a clinical breast exam performed every year by a health care clinician (doctor, nurse practitioner or physician's assistant)

Women aged 40-49 should:

- Perform breast self-exam (BSE) monthly, 3 to 5 days after the end of each period or on the same day each month if post-menopausal (after the change of life)
- Have a clinical breast exam performed every year by a health care clinician (doctor, nurse practitioner or physician's assistant)
- Have a mammogram (a low-dose x-ray of the breast) every year, or at your doctor's recommendation

Women aged 50 and older should:

- Perform breast self-exam (BSE) monthly, 3 to 5 days after the end of each period or on the same day each month if post-menopausal (after the change of life)
- Have a clinical breast exam performed every year by a health care clinician (doctor, nurse practitioner or physician's assistant)
- Have a mammogram (a low-dose x-ray of the breast) every year

Continued →

SCREENING (continued)

You should be aware that approximately 20% of mammograms do not pick up a breast cancer even when one is present. This is one reason why it is essential to have every lump or other breast change checked by a doctor. However, even though mammograms are not perfect, they are still the best method for finding breast cancer early, when it is most easily treated.

Remember -- regular screening is important! If breast cancer is found at an early stage, the chance of a cure is much better.

SYMPTOMS

Warning Signs of Breast Cancer Include:

- Lump or thickening of the breast, *whether painless or painful*
- Bloody discharge from the nipple
- Dimpling or puckering of the skin
- Retraction of the nipple (nipple goes into the breast)
- Scaly skin around the nipple
- Other changes in skin color or texture (for example, skin which looks like the surface of an orange)
- Swelling, redness or feeling of heat in the breast
- Lump in the armpit
- Unusual persistent pain or tenderness in the breast, arm, or chest wall

Remember, breast cancer may have no symptoms you can see or feel. That's why a mammogram is important.

DETECTION

Detection of Breast Cancer:

Every breast lump should be checked by a doctor. Suspicious lumps may be examined further by a doctor using:

- *Fine or core needle biopsy* (a needle is inserted into the lump to draw out tissue or fluid for study)
- *Surgical biopsy* (the lump, or a portion of the lump, is removed for study -- this is usually done at a hospital on an outpatient basis)

If you feel uncomfortable with your doctor's recommendation, get a second opinion. (To get a second opinion, see a doctor at a different hospital or in a different practice.)

INCIDENCE

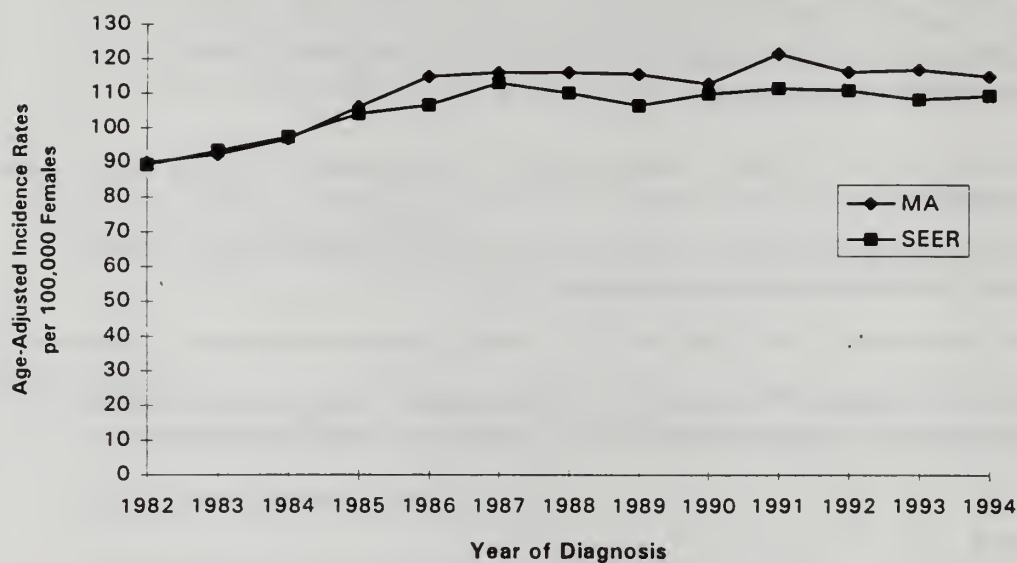
The average US woman who lives to be 85 has about a 1 in 8 chance of developing invasive breast cancer sometime during her lifetime. This is called a *cumulative lifetime risk*. It takes into account the fact that the chance of developing breast cancer is very different at different ages (1 in 2500 for women in their 20s, 1 in 66 for women in their 40s, and 1 in 29 for women in their 60s), and sums up this risk over a lifetime. The risk for a white woman is about the average (about 1 in 7.7, or 13%), while a black woman has a lower lifetime risk (about 1 in 10, or 9.7%).

In Massachusetts, breast cancer is the type of cancer diagnosed most often in women (not counting non-melanoma skin cancers). Between 1982 and 1994, 55,320 new cases of breast cancer were reported -- on average, about 4,250 women a year. This was 31% of all newly diagnosed cancers in women. In 1994 (the most recent year for which Massachusetts data are available), 4,600 women were diagnosed with breast cancer, an age-adjusted incidence rate of 115.3 per 100,000.

The incidence rate for breast cancer in Massachusetts increased nearly 35% between 1982 and 1991, from 90.0 per 100,000 to 121.7 per 100,000. Since 1991, rates have declined slightly, to 115.3 per 100,000 in 1994. Nationally, rates increased 23% between 1982 and 1994, from 89.3 per 100,000 to 109.7 per 100,000.

The incidence of breast cancer in Massachusetts is about 6% higher than rates from the SEER program (the best estimate of US cancer incidence) during this period. This may be due in part to two things. First, the northeastern part of the United States has a larger proportion of women at increased risk of breast cancer because of some of the factors mentioned earlier, such as late age at first birth. Also, Massachusetts tends to have higher rates of breast cancer screening than many other states, and a larger proportion of cases found early. This tends to make breast cancer rates in Massachusetts higher than in areas with less early detection.

**Figure 3. Female Breast Cancer Incidence Trends for
Massachusetts, 1982-1994 and SEER Areas, 1982-1994**

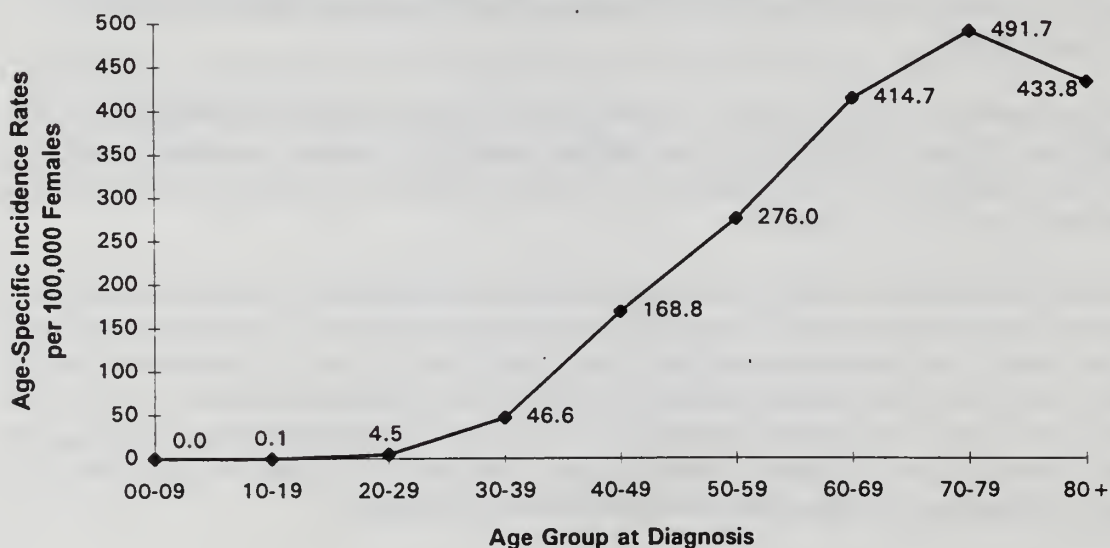


Breast Cancer Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	90.0	92.3	96.6	105.9	114.8	116.0	116.2	115.7	113.0	121.7	116.5	117.2	115.3
SEER	89.3	93.3	97.2	103.9	106.5	113.1	110.2	106.5	110.1	111.8	111.2	108.5	109.7

Among Massachusetts females, breast cancer incidence increases steadily with age, reaching a peak of nearly 500 per 100,000 in women aged 70-79. The rate then decreases in women aged 80 and older.

**Figure 4. Rate of Breast Cancer by Age Group
Massachusetts Females, 1990-1994**



STAGING

While breast cancer incidence has increased over time, the proportion of women being diagnosed at an early stage has also increased. In 1992, about 70% of breast cancers reported in Massachusetts women were detected at either an *in situ* or localized stage. This earlier diagnosis of breast cancer -- before the cancer spreads to more distant sites -- helps treatment to be more effective.

Please note that *in situ* breast cancers were not required to be reported to the Massachusetts Cancer Registry prior to 1992. This change in reporting also contributes to the increased proportion of early-stage diagnoses seen in 1992.

**Table 3. Breast Cancer Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	14.9 %
Localized (in one spot)	49.4 %	59.4 %	54.4 %
Regional (spread to some nearby areas)	33.5 %	28.4 %	21.4 %
Distant (spread into other parts of the body)	8.4 %	4.7 %	4.2 %
Unstaged (a stage can't be assigned)	8.7 %	7.5 %	5.1 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

Breast cancer is usually treated with some form of surgery (operation), such as a *lumpectomy* (in which the cancer and some normal tissue around it is removed, but the rest of the breast is left intact) or a *mastectomy* (in which the entire breast is removed). Your doctor may remove and examine some of the lymph nodes in your armpit as well, to see if the cancer has spread to this area. This surgery may be done at the time of the original surgery or during a separate surgery a week or more later. Examining these lymph nodes can help your doctor make a decision about the effectiveness of additional treatment. In addition to the surgeries mentioned, radiation, chemotherapy and/or hormonal therapy are sometimes used to treat breast cancer as well. Women who choose a mastectomy should also consider breast reconstruction (using tissue from the abdomen or back to form a new breast). This can be done at the time of surgery or later.

You and your doctor should discuss the options, and together make a decision about what treatment is best for you. You need to become informed about options and ask questions about the pros and cons of each treatment option. It is your life, and you should play the major role in decision-making. You can also see another doctor to get a second opinion about treatment options.

SURVIVAL

Overall, 80 to 85% of US women diagnosed with breast cancer survive for at least five years. Survival rates tend to be better for women diagnosed at an earlier stage, and survival rates are increasing as more women get screened regularly and more cancers are diagnosed at an earlier and more treatable stage.

There are some differences in survival rates by age and by race. Older women tend to have slightly better survival rates than younger women, possibly because the type of breast cancer many younger women have can be more aggressive (faster growing and less receptive to treatment) than in older women. White women have consistently higher survival rates than black women, even when we take the stage and the age at diagnosis into account. The National Cancer Institute attributes the lower survival rates in black women to the likelihood of the disease being more advanced at the time of diagnosis, due to less access to care, beliefs about breast cancer screening, and the possibility of a more aggressive form of the disease in black women.

Table 4 at a glance:

- Survival rates are better for women diagnosed at earlier stages.
- White women have better survival rates than black women.
- Older women have better survival rates than younger women.

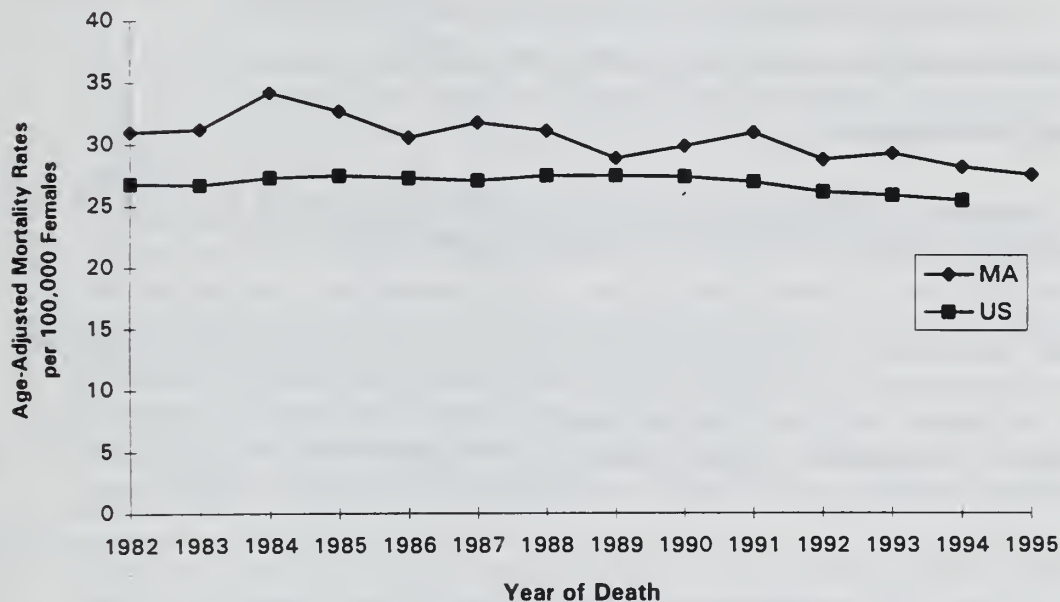
Table 4. Breast Cancer 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	84.2 %	85.5 %	70.0 %
By Stage at Diagnosis:			
Localized (in one spot)	96.8 %	97.4 %	89.6 %
Regional (spread to some nearby areas)	75.9 %	77.4 %	61.2 %
Distant (spread into other parts of the body)	20.6 %	21.2 %	16.8 %
By Age at Diagnosis:			
Under 65	82.7 %	84.1 %	68.9 %
65 and over	86.7 %	87.7 %	73.0 %

MORTALITY

For many years, breast cancer ranked as the number one cause of death from cancer for women both statewide and nationally. In recent years, however, lung cancer has overtaken breast cancer as the leading cause of cancer deaths in women. In 1995, 1,233 Massachusetts women died of breast cancer, a rate of 27.6 deaths per 100,000. For the period 1990-1994, Massachusetts' breast cancer mortality rate of 29.6 per 100,000 was 12% higher than the national rate of 26.4 per 100,000, and was the 4th highest in the nation.

Even though more cases of breast cancer have been diagnosed in past years, death rates have not increased. They have remained steady nationally, and have decreased slightly in recent years in Massachusetts. This is due in part to the increase in cases being diagnosed at earlier stages, and to women living longer with their disease, possibly due to more effective treatment.

Figure 5. Female Breast Cancer Mortality Trends for Massachusetts, 1982-1995 and United States, 1982-1994



Breast Cancer Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	31.0	31.2	34.2	32.7	30.6	31.8	31.1	28.9	29.9	31.0	28.8	29.3	28.2	27.6
US	26.8	26.7	27.3	27.5	27.3	27.1	27.5	27.5	27.4	27.0	26.2	25.9	25.5	

CERVICAL CANCER *

RISK FACTORS

Cervical Cancer Risk Factors:

- Growing older
- Sexual intercourse before age 19
- Multiple sexual partners
- Unprotected intercourse (having sex without a condom)
- Smoking
- Exposure to secondhand smoke (other people's smoke)
- Certain types of human papilloma virus (HPV, the virus that causes genital warts)
- Genital herpes
- HIV (human immunodeficiency virus, the virus that causes AIDS)
- Syphilis and other sexually transmitted diseases (STDs)

Possible Risk Factors:

- Inadequate (too little) vitamin A, vitamin C and/or folic acid in the diet. (Vitamin A, vitamin C and folic acid are found in fresh fruits and vegetables.)

Note: You are at risk of developing vaginal clear cell adenocarcinoma (a form of cervical and vaginal cancer) if your mother took the medication *diethylstilbestrol* (DES) while she was pregnant with you. This drug was given to many pregnant women between 1938 and 1971 to help prevent miscarriages. For more information, call DES Action at 1-800-DES-NEWS (1-800-337-6397) or 1-800-DES-9288 (1-800-337-9288).

Cervical cancer is frequently detected at a very early stage, called *preinvasive*, before it has gone beyond the surface cells of the cervix. The average age for diagnosis of this preinvasive cancer is the late 30s. The highest incidence of *invasive* cervical cancer -- cancer that has developed in the cervix beyond the top layer of cells -- is in women ages 60 to 69.

* The cervix is the narrow, lower portion of the uterus (womb), the birth canal.

PREVENTION

To Reduce the Risk of Cervical Cancer:

- Postpone sexual intercourse until after age 19
- Limit the number of sexual partners
- Always use a barrier method of protection (a condom) during sex
- Don't smoke
- Avoid secondhand smoke (other people's smoke)

SCREENING

Screening for Cervical Cancer:

- You can be screened for cervical cancer by having a *Pap test (Pap smear)*. A Pap test is done by a health care clinician -- a doctor, nurse practitioner, or physician's assistant -- who uses a very small spatula brush to obtain cells from the cervix (the opening to the uterus).

All women aged 18 and older who still have a cervix should have a pelvic exam and Pap test each year. A *pelvic exam* is an exam of your internal reproductive organs -- your vagina, cervix and uterus (womb) -- and is usually done at the same time as a Pap test. After a woman has had three or more normal annual exams, she and her doctor may decide that the Pap test may be performed less frequently.

- Sexually active women younger than age 18 should have a pelvic exam and Pap test each year.

If you have had a hysterectomy (had your uterus removed), ask your doctor if you still have a cervix. If you do, you still need an annual Pap test. If you don't, you still need to have a pelvic exam, and may still need a Pap test, but less frequently.

A Pap test is correct 80% of the time, but can still miss the early signs of preinvasive and invasive cervical cancer 20% of the time. This is why it's important to be screened regularly, by having a Pap test annually or at your doctor's recommendation. It's still the best way we have to screen for cervical cancer.

Remember -- most women still need regular Pap smears, no matter how old they are or whether or not they are sexually active. Talk to your doctor.

SYMPTOMS

There are **usually** no warning signs of early cervical cancer, so it's important to be screened regularly by having a Pap test and pelvic exam.

If you have any of the following symptoms, however, see a doctor:

- Vaginal discharge that may be light, continuous and watery, or bloody, and may smell bad. (Usually vaginal discharge is because of an infection, but any discharge should be checked by a doctor.)
- Unusual vaginal bleeding (not your period) -- bleeding that is unpredictable in how often it happens or how long it lasts, or is in some other way not normal for you
- Bleeding after sexual intercourse
- Pain in the lower back or pelvic area such as the hips, lower abdomen or vagina
- Weight loss
- Loss of appetite
- Urinary complaints -- having trouble emptying your bladder or feeling the need to go very often
- Constipation (infrequent bowel movements)

DETECTION

If the results of a Pap test are mildly abnormal, it is usually repeated in three to six months.

Dysplasia (abnormal or changing cells) detected on a Pap test is best evaluated by *colposcopy*. Colposcopy is an exam of the cervix and vagina using an instrument with a light that magnifies the cervix. The doctor can then do a *biopsy* -- take small pieces of tissue from that area to examine under a microscope. This procedure is called a *directed biopsy*. Taking the biopsy may cause mild cramping.

Endocervical curettage (ECC -- collecting cells from the uterus to be looked at under a microscope) and *loop electrocautery excision procedure* (LEEP -- passing an electric current through a thin wire to painlessly remove abnormal tissue) can also be done during colposcopy. This is usually done in a doctor's office.

A *cone biopsy* (surgically removing a cone-shaped portion of cervical tissue) may be needed if there is more than one abnormal Pap test, if the doctor can't see all of the cancer, or if the doctor thinks there might be invasive cancer.

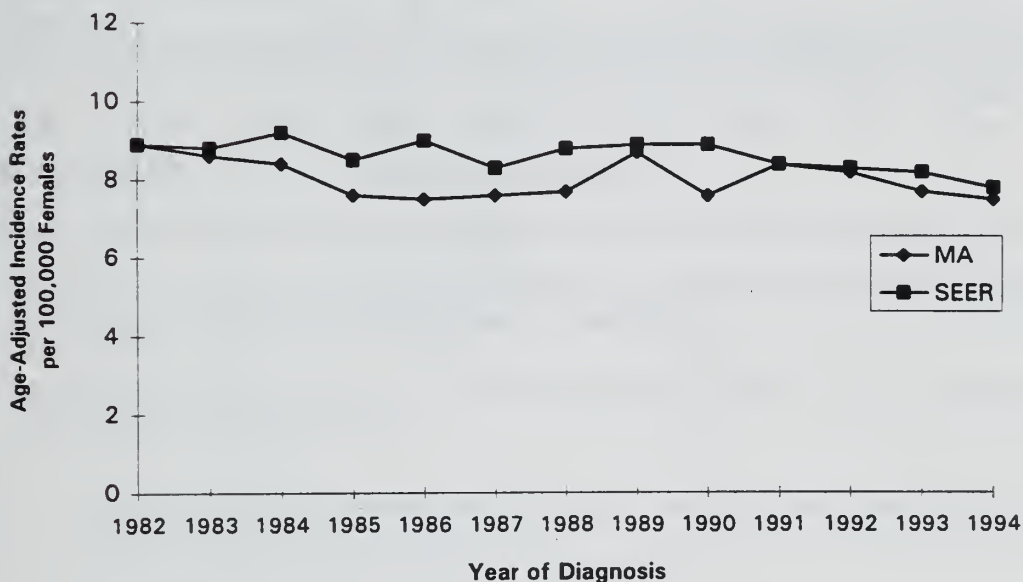
INCIDENCE

Based on national data, the average woman has about a 1 in 120 chance (less than 1%) of developing invasive cervical cancer at some point in her life. The risk of a white woman developing invasive cervical cancer is about the same (1 in 120), while a black woman's risk is higher, about 1.1% (1 in 89).

In Massachusetts, 3,910 new cases of invasive cervical cancer were reported between 1982 and 1994 -- about 300 cases a year. During this period, invasive cervical cancer accounted for 2.2% of all newly diagnosed cancers in females. In 1994, 295 Massachusetts women were diagnosed with invasive cervical cancer, an age-adjusted incidence rate of 7.5 per 100,000.

Invasive cervical cancer incidence in Massachusetts is slightly lower than the national incidence rate. Massachusetts incidence has decreased since 1991, and national incidence has also shown a small decrease since 1990.

Figure 6. Invasive Cervical Cancer Incidence Trends for Massachusetts, 1982-1994 and SEER Areas, 1982-1994

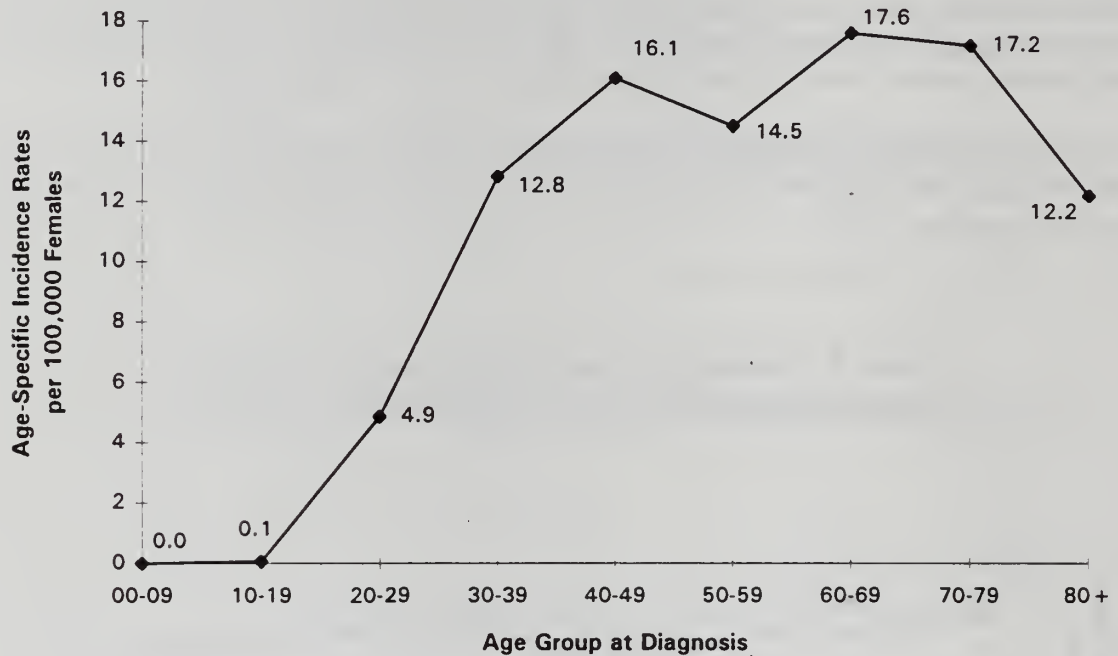


Cervical Cancer Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	8.9	8.6	8.4	7.6	7.5	7.6	7.7	8.7	7.6	8.4	8.2	7.7	7.5
SEER	8.9	8.8	9.2	8.5	9.0	8.3	8.8	8.9	8.9	8.4	8.3	8.2	7.8

Invasive cervical cancer incidence increases steadily with age until age 50, decreases among women aged 50-59, and then increases again to a maximum rate of 17.6 per 100,000 in women aged 60-69. Thereafter, the incidence rate declines.

**Figure 7. Rate of Invasive Cervical Cancer by Age Group
Massachusetts, 1990-1994**



STAGING

Most cervical cancers are found at the earliest stages, when it is most curable. In 1992, about two-thirds (2/3) of the cases were found while *in situ*, and a total of 90% were either *in situ* or localized.

Please note that *in situ* cervical cancers were not required to be reported to the Massachusetts Cancer Registry prior to 1992. This change in reporting resulted in a large increase in the number of cases reported, and contributed to the significant change in the distribution of stage at diagnosis observed in 1992.

**Table 5. Cervical Cancer Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	65.7 %
Localized (in one spot)	49.1 %	43.8 %	25.2 %
Regional (spread to some nearby areas)	28.9 %	34.8 %	4.0 %
Distant (spread into other parts of the body)	6.2 %	7.6 %	2.1 %
Unstaged (a stage can't be assigned)	15.8 %	13.8 %	7.7 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

The method of treating cervical cancer depends upon the stage of the disease. The earlier the disease is found, the better the chance of being cured.

Preinvasive cervical cancer can be cured almost 100% of the time. It can be treated with any of the following methods:

- *Conization* (surgically removing a cone-shaped portion of the cervix, including the cancer and normal tissue around it)
- *Cryosurgery* (freezing to remove tissue)
- *Laser surgery* (using a high intensity beam of light to remove tissue)
- *Electrosurgical excision* (using a thin loop with electrical energy to remove tissue from the cervix)

In many cases, women can bear children after treatment.

Invasive cervical cancer usually requires a *hysterectomy* (removal of the uterus and cervix) or radiation. Chemotherapy is used when the cancer is widespread, or if it has come back after earlier treatment.

SURVIVAL

Preinvasive cervical cancer is almost 100% curable. That's why regular Pap smears are so important, so that cervical cancers can be found early.

Overall, 65 to 70% of women diagnosed with invasive cervical cancer live for 5 years or more after diagnosis. This percentage has stayed fairly constant. There are differences in survival by age and by race. Survival is significantly better for women under age 50. Researchers think that this difference is because older women do not get screened by Pap smears as frequently as younger women. This means that when cervical cancer is found in an older woman, it's frequently detected at a more advanced stage, when the chances of effective treatment and survival are lower. Black women also tend to be diagnosed at a later stage, with poorer survival as a result. Even taking age and stage at diagnosis into account, black women still tend to have lower survival rates than white women. The reason for this is not fully understood.

Table 6 at a glance:

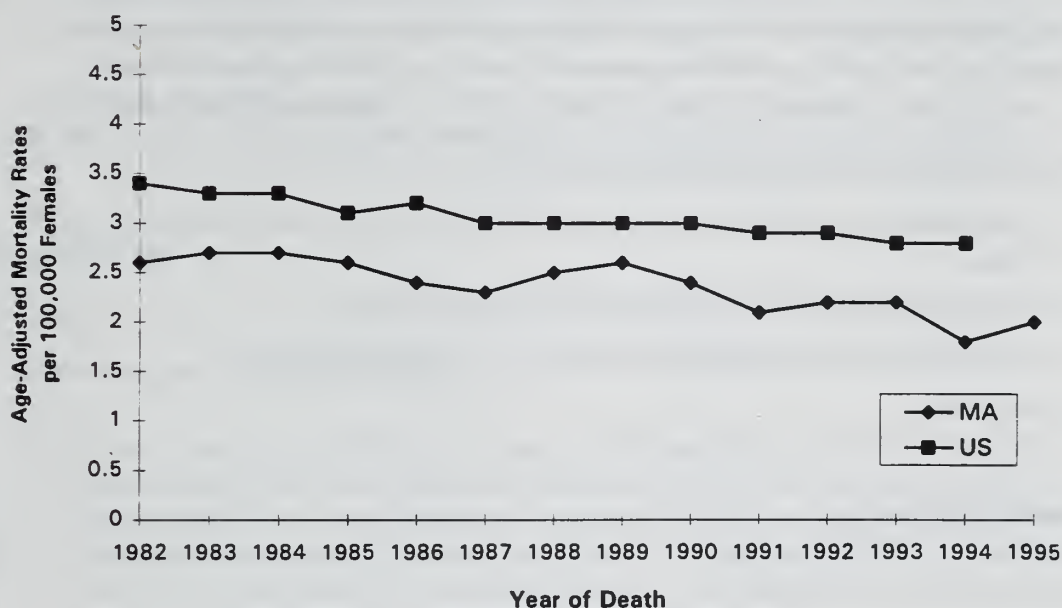
- Survival rates are poorer for women diagnosed at later stages.
- White women have better survival rates than black women.
- Younger women have better survival rates than older women.

Table 6. Invasive Cervical Cancer 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	68.9 %	71.4 %	57.1 %
By Stage at Diagnosis:			
Localized (in one spot)	91.3 %	91.9 %	88.2 %
Regional (spread to some nearby areas)	49.4 %	51.1 %	40.9 %
Distant (spread into other parts of the body)	9.1 %	9.8 %	7.7 %
By Age at Diagnosis:			
Under 65	73.6 %	76.3 %	59.3 %
65 and over	50.3 %	50.6 %	50.0 %

MORTALITY

Between 1982 and 1995, 1,295 women in Massachusetts died of invasive cervical cancer, an average of about 90 women per year. Cervical cancer death rates are slowly but steadily decreasing. This is largely due to increases in cervical cancer screening, resulting in cancers being detected earlier. By 1995, the Massachusetts rate had declined to 2.0 per 100,000 -- a 23% decrease since 1982. Nationally, rates have declined 18%, from 3.4 per 100,000 in 1982 to 2.8 per 100,000 in 1994. Even though incidence rates are about the same in Massachusetts as in the SEER areas, death rates among Massachusetts women are, on average, about 24% lower than national rates.

Figure 8. Invasive Cervical Cancer Mortality Trends for Massachusetts, 1982-1995 and United States, 1982-1994



Cervical Cancer Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	2.6	2.7	2.7	2.6	2.4	2.3	2.5	2.6	2.4	2.1	2.2	2.2	1.8	2.0
US	3.4	3.3	3.3	3.1	3.2	3.0	3.0	3.0	3.0	2.9	2.9	2.8	2.8	

COLORECTAL CANCER

RISK FACTORS

Colorectal Cancer Risk Factors:

- Growing older (For persons with no other risk factors, the risk of developing colorectal cancer begins at age 40 and doubles every 10 years -- for example, a person 60 years old is twice as likely to be diagnosed with colorectal cancer as a 50-year-old person.)
- A personal history of colorectal polyps or cancer
- A family history of colorectal cancer or polyps, including the various polyposis syndromes, such as familial adenomatous polyposis, Gardner's Syndrome or Peutz-Jeghers Syndrome. (Note: the risk of colorectal polyps and cancer in persons with a positive family history often increases at an earlier age than in persons without a family history, especially if one first-degree relative -- a parent, sibling or child -- had a colorectal cancer or adenomatous polyp diagnosed before age 60, or if more than one first-degree relative has been affected at any age.)
- A personal history of inflammatory bowel disease such as ulcerative colitis or Crohn's Disease
- A personal history of ovarian, breast or endometrial cancer
- A diet high in fat and animal protein, and low in fiber and folic acid
- Black race

Possible Risk Factors:

- Alcohol, especially beer
- Smoking
- Physical inactivity

Note: 85% of all persons diagnosed with colorectal cancer have none of these risk factors except age.

PREVENTION

To Reduce the Risk of Colorectal Cancer:

- Eat more chicken and fish, and less red meat
- Reduce the amount of fat in your diet
- Eat more fiber -- a minimum of five servings of fruits and vegetables a day
- Eat more foods high in folic acid, such as green leafy vegetables, citrus fruits and beans
- Increase your physical activity
- Avoid excessive alcohol consumption (especially beer)
- Don't smoke
- Ask your doctor about taking an aspirin 2 to 3 times a week
- Have colon polyps removed. (Polyps are benign growths on the inside lining of the colon which may become cancerous with time, and can usually be removed without the need for major surgery)

SCREENING

Screening for Colorectal Cancer:

- A *stool blood test* (also known as *fecal occult blood testing*, or *FOBT*) every year for persons age 50 and older. Before you have one of these tests, you should follow a special diet for 48 hours beforehand: no meat, high fiber, and no vitamin C (either in foods or as a vitamin). A positive stool blood test is not the final word, since blood in the stool may be caused by diet or hemorrhoids. You should talk to your doctor about what your test results mean and what tests are needed next.
- A *flexible sigmoidoscopy* (a slender lighted instrument inserted up the rectum for visual exam) every 5 years for persons age 50 and older. This test is done in your doctor's office, or as an outpatient at a hospital. It may be uncomfortable, but it is very important.

For people at high risk of developing colorectal cancer, exams should begin as early as age 20.

- For high-risk individuals, such as those with a history of polyps or cancer, a *colonoscopy* may be the preferred screening test. A colonoscopy can be done in the doctor's office or as an outpatient at a hospital, and requires an intravenous sedative. This test is similar to a sigmoidoscopy, but allows all 5 feet of the colon to be seen.

Continued →

SCREENING (continued)

Health care clinicians don't always suggest screening for colorectal cancer, despite its importance. Women age 50 and older need to demand screening for colorectal cancer. Women should not be dying of colorectal cancer. It can be treated easily if detected early.

SYMPTOMS

Common Warning Signs of Colorectal Cancer Include:

- Rectal bleeding/blood in the stool -- blood may be visible, or may be detectable only by the stool blood test
- Change in bowel habits
- Abdominal pain which does not go away
- Unaccountable weight loss -- losing weight without trying
- Unexplained anemia

Less Common Warning Signs Include:

- Abdominal bloating
- Sensation of incomplete bowel movement
- Pencil-like or narrow stool
- Pain in the lower back
- Bladder symptoms, such as feeling the need to urinate too frequently
- Enlargement of the liver

DETECTION

Colorectal cancer can be detected by *sigmoidoscopy* (if the cancer is located in the lower portion of the colon or rectum), *colonoscopy*, or *barium enema* with air contrast (an x-ray test of the entire colon). Persons with symptoms, a positive stool blood test, or precancerous polyps seen at sigmoidoscopy should be further evaluated by either a colonoscopy or barium enema. A *biopsy* (removing a piece of abnormal tissue and examining it under a microscope) is required to confirm the presence of a cancer.

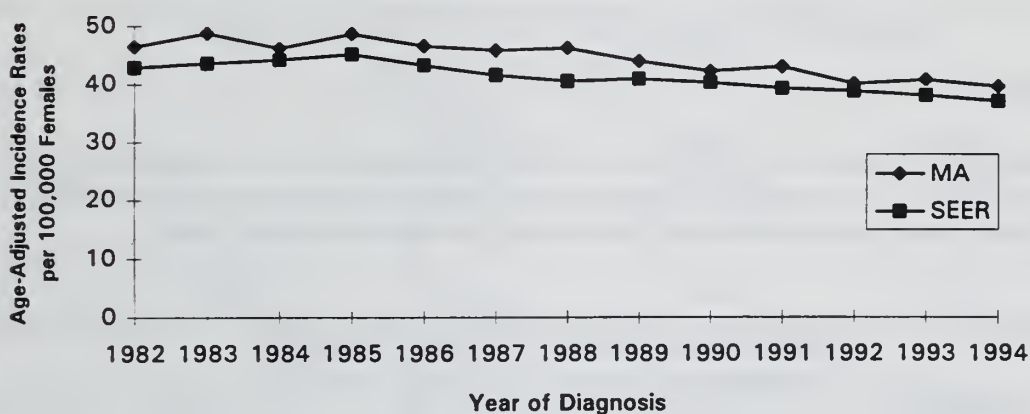
INCIDENCE

Based on national data, the average woman has approximately a 6% lifetime risk of developing invasive colorectal cancer, or about a one in 17 chance. The incidence of colorectal cancer in black women continues to increase, however, while incidence has decreased in white women. Therefore, black race should be considered a risk factor for colorectal cancer.

In Massachusetts, 26,565 new cases of colorectal cancer were reported in women between 1982 and 1994 -- an average of just over 2,000 cases a year. Colorectal cancer was the second most common type of cancer in females, accounting for 14.9% of all newly diagnosed cancers. In 1994, 1,872 women in the state were diagnosed with colorectal cancer, for an age-adjusted incidence rate of 39.7 per 100,000.

Overall, the age-adjusted incidence rate of colorectal cancer in Massachusetts women has gone down over time, from 46.5 per 100,000 in 1982 to 39.7 per 100,000 in 1994 -- a decrease of nearly 15%. This decrease was greater in Massachusetts than in the country as a whole (about 13% between 1982 and 1994).

Figure 9. Female Colorectal Cancer Incidence Trends for Massachusetts, 1982-1994 and SEER Areas, 1982-1994

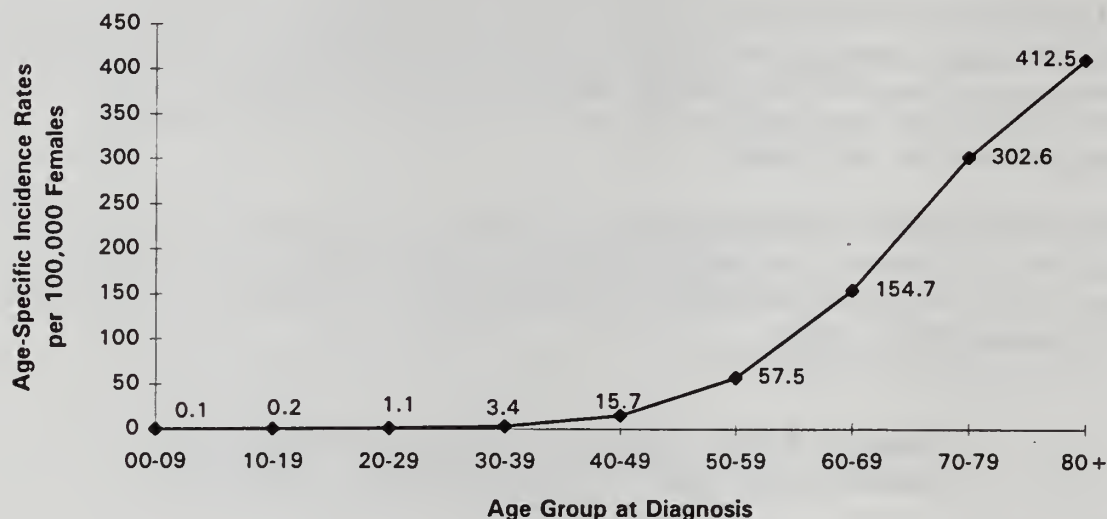


Colorectal Cancer Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	46.5	48.8	46.2	48.7	46.6	45.9	46.3	44.0	42.3	43.1	40.2	40.9	39.7
SEER	42.9	43.6	44.2	45.2	43.3	41.6	40.6	41.0	40.4	39.4	38.9	38.2	37.2

The incidence of colorectal cancer increases steadily with age, reaching about 412 cases per 100,000 in women aged 80 and older in Massachusetts.

**Figure 10. Rate of Colorectal Cancer by Age Group
Massachusetts Females, 1990-1994**



STAGING

For colorectal cancer, there was very little change in distribution of the stage at diagnosis between 1982 and 1992. Overall, the increase in early detection seen in some other cancers, such as breast cancer or cervical cancer, has not been observed in colorectal cancer.

**Table 7. Colorectal Cancer Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	6.2 %
Localized (in one spot)	26.8 %	31.4 %	23.1 %
Regional (spread to some nearby areas)	46.4 %	44.3 %	45.3 %
Distant (spread into other parts of the body)	15.7 %	15.3 %	16.5 %
Unstaged (a stage can't be assigned)	11.1 %	9.0 %	8.9 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

Surgery is the primary form of treatment for colorectal cancer. Additionally, newer chemotherapy and biological therapies may be used. Patients with rectal cancer may also be treated with radiation and/or chemotherapy before surgery. A colostomy (wearing a bag outside the body to collect stools) is now rarely required in the treatment of colon cancer.

SURVIVAL

Survival rates for women with colorectal cancer have increased approximately 6% since 1980, to about 61%. This has been due primarily to a slight increase in the survival rates for white women; survival has remained essentially unchanged for black women. White women have higher survival rates than black women for all stages and age categories. Younger women also have slightly better survival rates than older women.

Table 8 at a glance:

- Survival rates are poorer for women diagnosed at later stages.
- White women have better survival rates than black women.
- Younger women have better survival rates than older women.

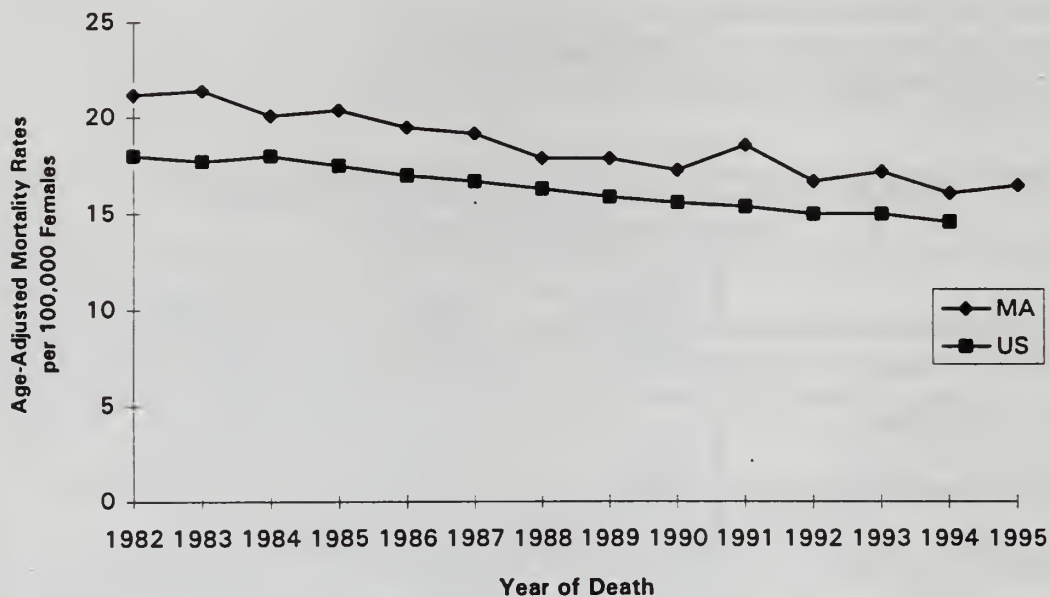
Table 8. Colorectal Cancer 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	61.0 %	61.8 %	53.2 %
By Stage at Diagnosis:			
Localized (in one spot)	90.8 %	91.4 %	85.0 %
Regional (spread to some nearby areas)	63.8 %	64.1 %	61.5 %
Distant (spread into other parts of the body)	7.8 %	8.3 %	3.7 %
By Age at Diagnosis:			
Under 65	62.8 %	63.4 %	58.3 %
65 and over	60.2 %	61.0 %	49.2 %

MORTALITY

Colorectal cancer is the third leading cause of cancer deaths in women in Massachusetts, accounting for 13.8% of cancer deaths between 1982 and 1995. During this period, 12,902 Massachusetts women died of colorectal cancer, an average of 922 each year. In 1995, 878 women died, for an age-adjusted mortality rate of 16.5 per 100,000.

Colorectal cancer death rates for Massachusetts women are slightly higher than for women nationally. Since 1982, the age-adjusted mortality rate in Massachusetts women has declined 22%, from 21.2 per 100,000 in 1982 to 16.5 per 100,000 in 1995. SEER rates decreased 19% between 1982 and 1994, from 18.0 per 100,000 to 14.6 per 100,000.

Figure 11. Female Colorectal Cancer Mortality Trends for Massachusetts, 1982-1995 and United States, 1982-1994



Colorectal Cancer Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	21.2	21.4	20.1	20.4	19.5	19.2	17.9	17.9	17.3	18.6	16.7	17.2	16.1	16.5
US	18.0	17.7	18.0	17.5	17.0	16.7	16.3	15.9	15.6	15.4	15.0	15.0	14.6	

LUNG CANCER

Note: All information and data below refer to both lung cancer and to cancer of the bronchus (the tube(s) responsible for carrying air to and from the lungs).

RISK FACTORS

Lung Cancer Risk Factors:

- Smoking
- Having had lung cancer previously
- Secondhand smoke (breathing other people's smoke or being in a room where people have been smoking)

Occupational (and in some cases environmental) exposure to:

- Arsenic
- Asbestos
- Chromium compounds
- Coal tars
- Mustard gas
- Nickel
- Petroleum
- Radioactive ores
- Radon
- Uranium

Note: 85% of all lung cancers are caused by smoking. The risk of lung cancer is 10 times greater for women who smoke up to one pack of cigarettes a day and 20 times greater for woman who smoke more than one pack of cigarettes a day than for women who do not smoke. More women now die of lung cancer than any other type of cancer, including breast cancer.

Lung cancer is most frequently diagnosed in women aged 65 and older.

PREVENTION

To Reduce the Risk of Lung Cancer:

- Don't smoke -- and if you do smoke, quit
- Avoid secondhand smoke (other people's smoke)
- Minimize occupational exposure to cancer-causing agents such as arsenic, asbestos, chromium compounds, coal tars, mustard gas, nickel, petroleum, and radioactive ores such as uranium
- Limit your opportunities for environmental exposure to similar contaminants, such as airborne exposure to arsenic
- Test your home for radon, and make sure it is well-ventilated to prevent radon buildup
- Eat more vegetables and fruits

SCREENING

There is no specific screening test for lung cancer.

Tell your doctor if you are a smoker or former smoker.

SYMPTOMS

Warning Signs of Lung Cancer Include:

- Smokers' cough which lasts or is violent
- A cough which hangs on for more than two weeks in nonsmokers
- Chest pain that lasts even when you are not coughing
- Wheezing sound when breathing
- Shortness of breath or finding it hard to breathe
- Bloodstained sputum (blood when you spit)
- Change in color or volume of sputum (what is spit up)
- Shoulder and arm pain
- Hoarse voice
- Recurring pneumonia or bronchitis
- Fever

Continued →

SYMPTOMS (continued)

- Feeling weak
- Unaccountable weight loss -- losing weight without trying
- Difficulty swallowing
- Enlarged lymph nodes in the neck
- Drooping of one eyelid (Horner's syndrome)
- Club-shaped fingertips

DETECTION

Lung Cancer Detection May Include:

- *Biopsy* (removal of suspicious tissue for study under a microscope)
- *Bronchogram* (a specialized x-ray of the tubes which carry air to the lungs)
- *Bronchoscopy* (sliding a lighted tube down the throat)
- Chest x-ray
- *Computed tomographic (CT) scanning* (special x-ray to give a picture of organs inside the body)
- *Mediastinoscopy* (inserting a slender instrument through a cut in the neck to remove nodes for microscopic exam)
- *Microscopic sputum exam* (examining what you spit up under a microscope)
- *Pulmonary function test* (a machine records how the lungs work during exercise)
- *Transthoracic needle aspiration* (TNA -- inserting a needle into a growth in the lung and removing a piece of the growth for microscopic exam)
- *Thoracentesis* (inserting a needle into the chest to draw out fluid to see if there are cancer cells in the fluid)
- *Thoracoscopy* (inserting a slender lighted tubular instrument into lung cavity through a cut between two ribs to examine the lung and chest wall and take tissue samples)

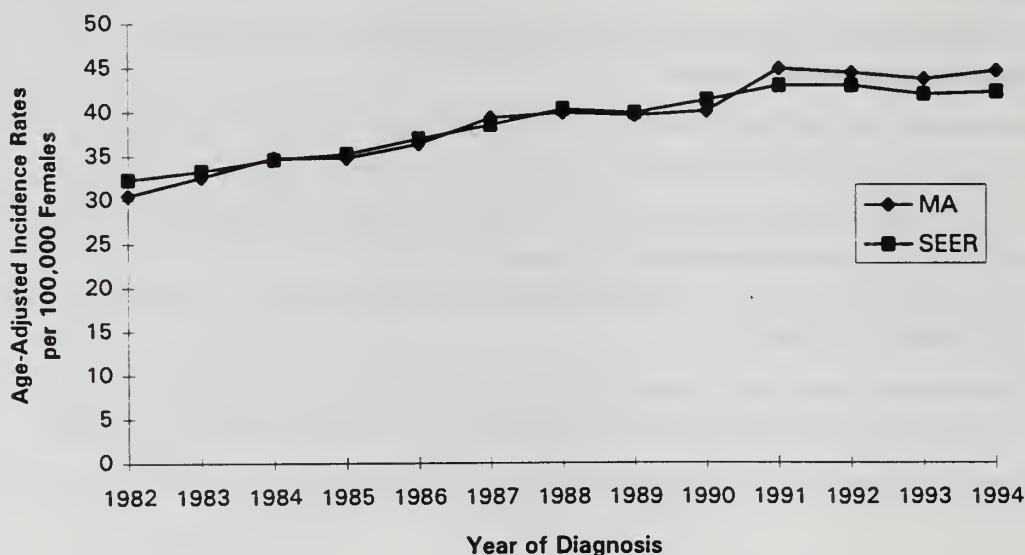
INCIDENCE

Based on national data, the average woman has approximately a 5.6% lifetime risk of developing invasive lung cancer, or about a one in 18 chance. The risk for a white woman is slightly higher, about one in 17, while a black woman has a slightly lower risk, about one in 20. It's important to note that these are average risks, based on data from both smokers and non-smokers. A smoker will have a much higher likelihood of developing lung cancer, and a non-smoker will have a lower risk.

In Massachusetts, 19,614 new cases of lung cancer in women were reported between 1982 and 1994 -- on average, about 1,500 cases per year. During this period, lung cancer accounted for 11% of all newly diagnosed cancers in women. Between 1982 and 1990, lung cancer was the third most common cancer diagnosed in women, after breast and colorectal cancer. In 1991, however, it moved ahead of colorectal cancer to become the second most commonly diagnosed cancer in women. In 1994, 1,774 women were diagnosed with lung cancer, an age-adjusted incidence rate of 44.8 per 100,000

The incidence of lung cancer in Massachusetts women has increased slowly but steadily over time, from 30.5 in 1982 to 44.8 in 1994, adding up to an increase in incidence of over 45% since 1982. SEER data show a smaller increase of 31%, from 32.4 per 100,000 in 1982 to 42.4 per 100,000 in 1994. The incidence rate for lung cancer in Massachusetts is similar to that seen in SEER areas.

Figure 12. Female Lung Cancer Incidence Trends for Massachusetts, 1982-1994 and SEER Areas, 1982-1994

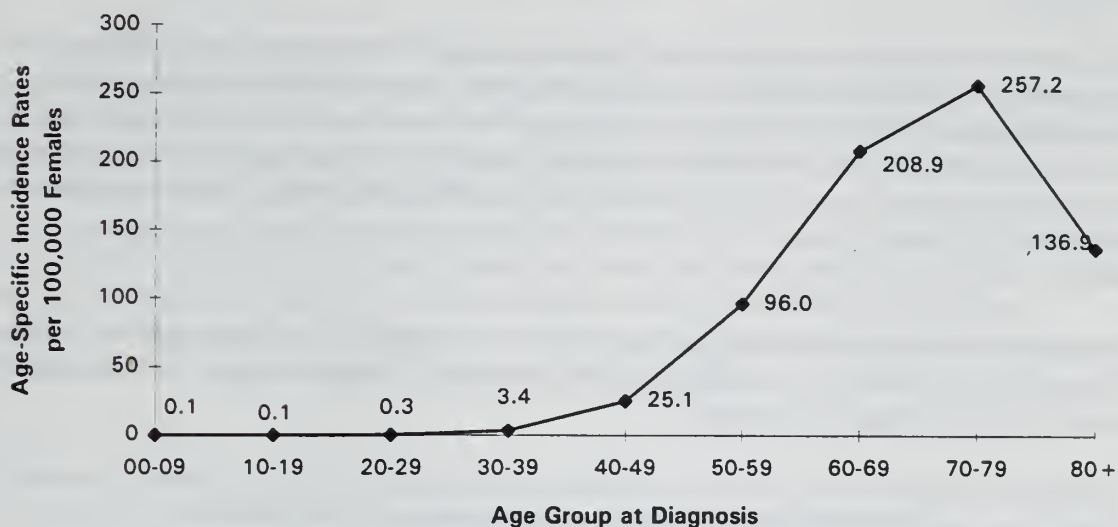


Lung Cancer Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	30.5	32.6	34.8	34.8	36.4	39.4	40.0	39.7	40.2	45.0	44.5	43.8	44.8
SEER	32.3	33.3	34.6	35.3	37.0	38.6	40.4	40.0	41.5	43.1	43.1	42.1	42.4

Lung cancer incidence increases with age, peaking at about 257 cases per 100,000 women aged 70-79 in Massachusetts, and then declines in those aged 80 and older.

**Figure 13. Rate of Lung Cancer by Age Group
Massachusetts Females, 1990-1994**



STAGING

Overall, there has been almost no change in the distribution of stage at diagnosis of lung cancer in women, reflecting the difficulties in detecting lung cancer at an early stage. About 75% of lung cancers are detected only after they have spread, either to nearby areas or to other parts of the body, and are much less treatable than those found early.

**Table 9. Lung Cancer Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	0.1 %
Localized (in one spot)	21.8 %	26.2 %	25.0 %
Regional (spread to some nearby areas)	26.0 %	25.6 %	25.6 %
Distant (spread into other parts of the body)	36.1 %	35.6 %	37.6 %
Unstaged (a stage can't be assigned)	16.2 %	12.5 %	11.8 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

Lung cancer is treated with chemotherapy, radiation, surgery, or a combination of these. New chemical and biological agents and gene therapies are under study.

SURVIVAL

Lung cancer has the poorest survival rate of the seven cancers included in this report -- only about 16% of women diagnosed with lung cancer survive at least five years after diagnosis. Women diagnosed at a localized stage have about a 50% 5-year survival rate. Unfortunately, however, only about a quarter of cases are diagnosed this early. Most lung cancers are diagnosed at a regional or distant stage, when the cancer has spread beyond the lung. Rates for women presenting with distant disease are particularly low, with only about 2% surviving at least five years.

White women show better survival than black women for all stages and age groups; the difference in rates is largest in younger age groups. Overall, survival is slightly better among younger women, although it is still low.

Women have higher survival rates than men for each stage and type. This is primarily because of the higher proportion of adenocarcinomas among women, a histology (tissue type) with a better prognosis (likelihood of longer survival) than the type men usually get.

Table 10 at a glance:

- Survival rates are poorer for women diagnosed at later stages.
- White women have better survival rates than black women.
- Younger women have better survival rates than older women.

Table 10. Lung Cancer 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	15.7 %	16.1 %	12.2 %
By Stage at Diagnosis:			
Localized (in one spot)	53.2%	53.7 %	45.6 %
Regional (spread to some nearby areas)	20.4 %	20.6 %	17.6 %
Distant (spread into other parts of the body)	2.4 %	2.5 %	1.6 %
By Age at Diagnosis:			
Under 65	18.4 %	18.9 %	15.4 %
65 and over	13.5 %	14.0 %	8.1 %

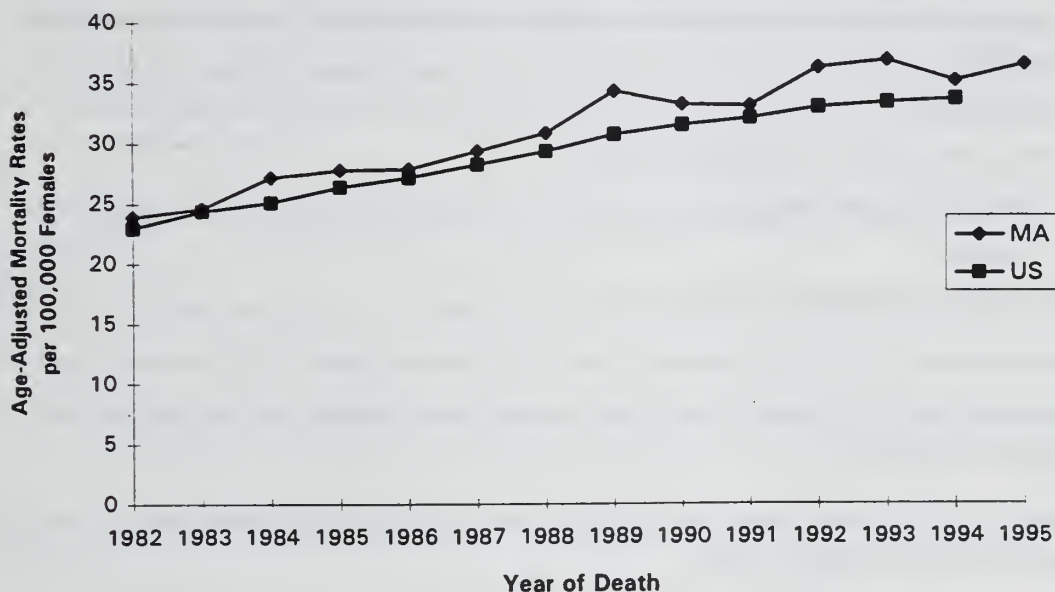
MORTALITY

Between 1982 and 1995, 17,866 women died of lung cancer in Massachusetts. The annual number of deaths increased steadily during that period, from 931 in 1992 to 1,593 in 1995. Mortality rates increased over 50% during this period, from 23.9 per 100,000 in 1982 to 36.7 per 100,000 in 1995. **In 1989, lung cancer became the leading cause of cancer deaths among Massachusetts women, moving ahead of breast cancer.**

This increase in lung cancer mortality in women continues in large part due to historic smoking patterns in women. In general, women began smoking in large numbers later in time than men did. Because of this pattern, and because of the lag time between cigarette smoking and the development of lung cancer, the true effect of this change in smoking habits in women is only now being seen, both in terms of incidence and mortality.

Lung cancer mortality rates have been steadily increasing both nationally and in Massachusetts. Overall, lung cancer mortality was about 6% higher among Massachusetts women than nationally for the period 1990-1994. National data show similar trends, however, with the age-adjusted mortality rate increasing 47% between 1982 and 1994.

Figure 14. Female Lung Cancer Mortality Trends for Massachusetts, 1982-1995 and United States, 1982-1994



Lung Cancer Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	23.9	24.6	27.2	27.8	27.9	29.4	30.9	34.4	33.3	33.2	36.4	37.0	35.3	36.7
US	23.0	24.4	25.1	26.4	27.2	28.3	29.4	30.8	31.6	32.2	33.1	33.5	33.8	

MELANOMA *

RISK FACTORS

Melanoma Risk Factors:

- Changing or changed mole
- Age 15 or older
- New moles which appear in adults after age 30 that itch and are tender
- One or more large or unevenly colored lesions such as:
 - Dysplastic mole(s), with or without a family history of melanoma
 - Lentigo maligna
- Having familial atypical mole and melanoma syndrome
- Having giant congenital melanocytic nevi (pigmented patches of skin)
- Having a nevus (birthmark) since birth
- White race
- Previous melanoma
- Strong family history of melanoma
- Immunosuppression (when the body's defenses are weakened, such as after transplant surgery)
- Sun sensitivity
- Repeated sunburns, especially as a child
- Getting sunburned easily
- Freckling
- Can't get a tan easily

There is no evidence that trauma to a mole or birthmark (such as hitting or burning) can lead to development of melanoma.

Melanoma is most common on the skin surface but can arise in other locations inside the body as well, such as the eye, mouth or colon.

Melanoma is most common in persons aged 15 to 50, but incidence continues to increase with age.

* Melanoma is the most deadly form of skin cancer. Other forms of skin cancer are basal-cell and squamous-cell.

PREVENTION

To Reduce the Risk of Melanoma:

- Limit your time in the sun. Try especially to avoid the sun between 10 a.m. and 4 p.m.
- Use a waterproof sunscreen of SPF 15 or higher whenever you're outside, and reapply frequently. Sunscreen should be reapplied after swimming or sweating.
- Wear hats, long-sleeved shirts and long pants to protect the body from the sun.
- Never use tanning booths, tanning parlors or sunlamps.
- Avoid the sun when taking drugs which make your skin more sensitive to light (photosensitive drugs), including antibiotics such as tetracycline, tretinoin (Retin A), sleeping pills and diuretics (water pills).

SCREENING

Screening for Melanoma:

- Examine yourself using a full length mirror and a hand mirror under bright light.
- Have a complete exam of your skin, including your scalp, by a specially trained health care clinician -- doctor, nurse practitioner or physician's assistant -- each year, beginning as early as age 20.

In families with a history of melanoma, screening should begin between ages 12 and 14.

SYMPTOMS

Warning Signs of Melanoma Include:

- A new mole
- Moles that change color, shape, size or height
- Moles that itch or are painful
- Moles that bleed
- Moles with **ABCD** features:
 - Asymmetry (not the same proportions throughout)
 - Border irregularities
 - Color that varies
 - Diameter greater than 6 millimeters (a quarter of an inch or greater)

DETECTION

An *excisional biopsy* (in which the mole and a rim of normal tissue around it is cut out) is the usual way to determine if you have a melanoma. This is usually performed under local anesthesia in a doctor's office or as an outpatient. (If melanoma is suspected, the lesion should not be burned off.)

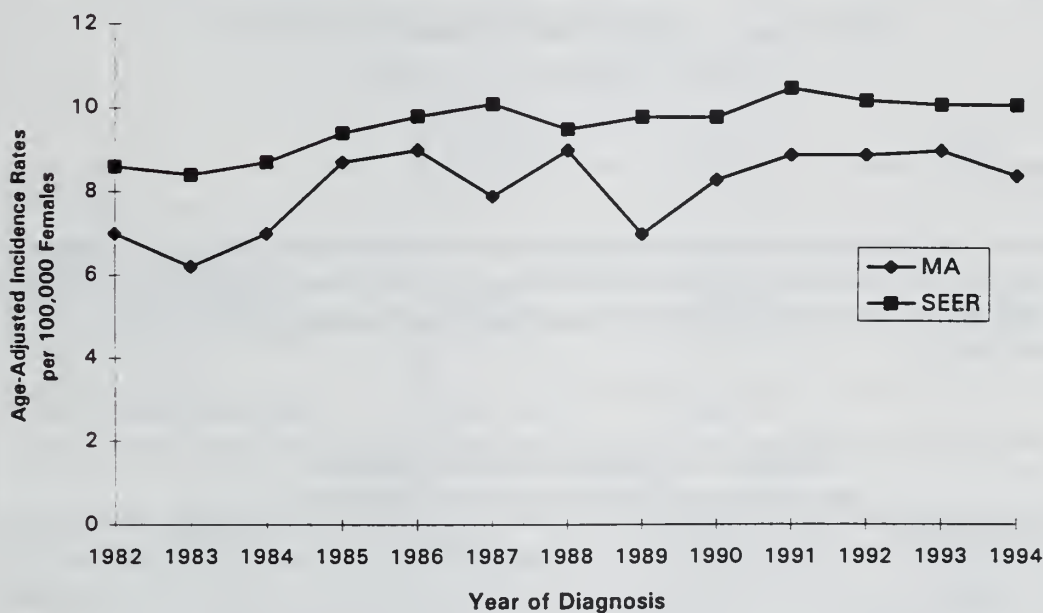
INCIDENCE

Based on national data, the average woman has approximately a 1.1% lifetime risk of developing invasive melanoma, or about a one in 93 chance. The risk for a white woman is about one in 82, while a black woman has a much lower risk, about one in 1,430.

In Massachusetts, 3,928 new cases of melanoma were reported in females between 1982 and 1994 -- about 300 cases a year. During this interval, melanoma accounted for 2.2% of newly diagnosed cancers in females. In 1994, 334 Massachusetts women were diagnosed with melanoma, an age-adjusted incidence rate of 8.4 per 100,000.

The incidence rate of melanoma in Massachusetts women has increased approximately 20% since 1982, from 7.0 per 100,000 to 8.4 per 100,000 in 1994. Rates have fluctuated during this period, however, because of the relatively small number of women diagnosed annually. State incidence has been slightly lower than national incidence, perhaps reflecting the lower levels of exposure to sunlight in the northeastern US. Nationally, incidence has increased about 17%, from 8.6 per 100,000 in 1982 to 10.1 per 100,000 in 1994.

Figure 15. Female Melanoma Incidence Trends for Massachusetts, 1982-1994 and SEER Areas, 1982-1994

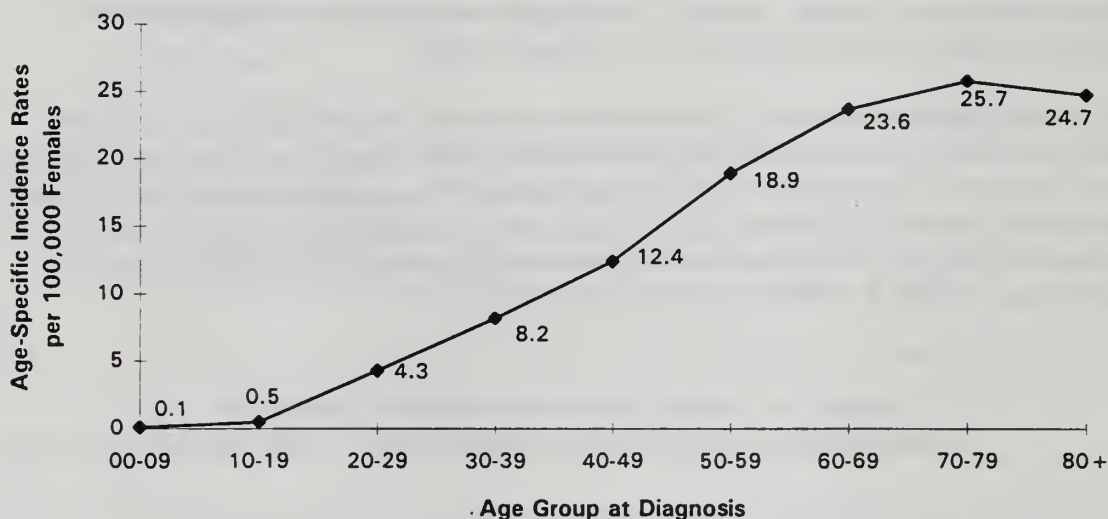


Melanoma Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	7.0	6.2	7.0	8.7	9.0	7.9	9.0	7.0	8.3	8.9	8.9	9.0	8.4
SEER	8.6	8.4	8.7	9.4	9.8	10.1	9.5	9.8	9.8	10.5	10.2	10.1	10.1

Melanoma incidence increases steadily with age, peaking at 25.7 cases per 100,000 in women aged 70 to 79. It then decreases slightly in women aged 80 and older.

**Figure 16. Rate of Melanoma by Age Group
Massachusetts Females, 1990-1994**



STAGING

Overall, more than 75% of melanomas are diagnosed at an *in situ* or localized stage, when the disease is most treatable. The proportion of melanomas diagnosed at a distant stage increased between 1982 and 1992, however, and indeed was greater than the proportion of regional diagnoses in 1992.

**Table 11. Melanoma Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	14.6 %
Localized (in one spot)	75.3 %	84.5 %	62.4 %
Regional (spread to some nearby areas)	12.0%	6.5 %	4.4 %
Distant (spread into other parts of the body)	2.4 %	1.7 %	5.8 %
Unstaged (a stage can't be assigned)	10.4 %	7.2 %	12.7 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

Melanoma is usually treated by surgical removal of the entire melanoma and a border of normal tissue around it. For advanced melanoma, chemotherapy and/or immunotherapy may be used.

SURVIVAL

Melanoma has the highest overall survival rate of the seven cancers in this report, about 90%. Survival for white women has increased slightly over time, presumably due to increased early detection (more cases being found earlier). Among white females, survival rates are higher in those under age 65 than in those age 65 and older. The number of cases in black women is too small to draw any definitive conclusions.

Table 12 at a glance:

- Survival rates are poorer for women diagnosed at later stages.
- White women seem to have better survival rates than black women (although the number of black women who are diagnosed with melanoma is so small that their survival rates may not be accurate).
- Younger women have slightly better survival rates than older women.

Table 12. Melanoma 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	90.9 %	91.1 %	78.7 % +
By Stage at Diagnosis:			
Localized (in one spot)	96.2%	96.2 %	92.5 % +
Regional (spread to some nearby areas)	65.7 %	66.1 %	--
Distant (spread into other parts of the body)	16.0 %	16.7 %	--
By Age at Diagnosis:			
Under 65	92.6 %	92.6 %	87.6 % +
65 and over	85.6 %	86.0 %	71.0 % +

-- Survival rate could not be calculated because of small numbers.

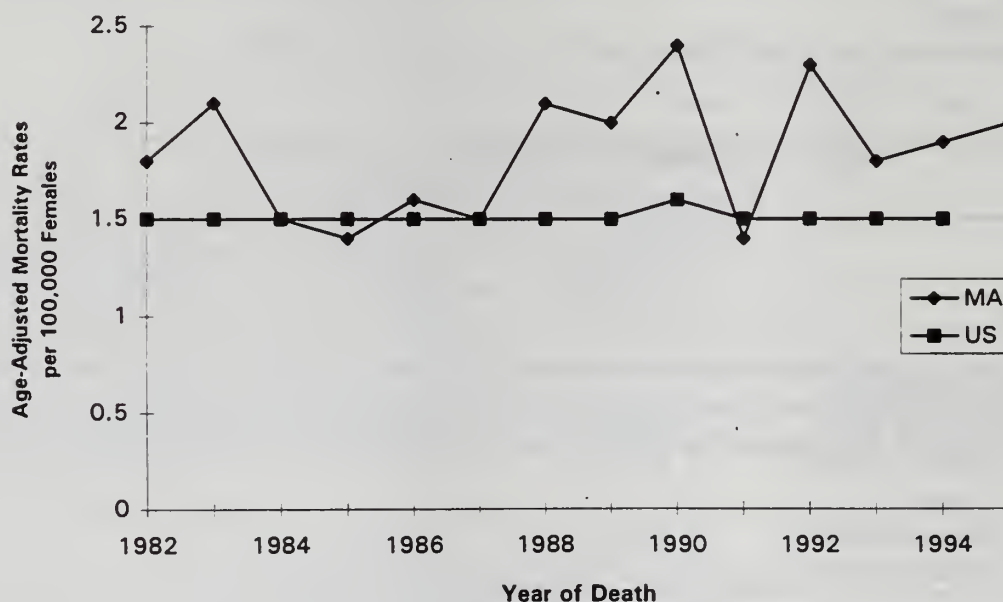
+ These numbers may not be accurate, since the number of black women with melanoma is so small.

MORTALITY

Between 1982 and 1995, 1,046 women in Massachusetts died of melanoma, an average of 75 deaths per year. In 1995, 91 women died, for an age-adjusted mortality rate of 2.0 per 100,000. As for incidence, the small numbers of deaths from melanoma result in year-to-year fluctuations. Over time, however, Massachusetts rates have remained fairly steady. US rates have also remained steady at about 1.5 per 100,000. For the period 1990-1994, Massachusetts had the fourth highest female melanoma mortality rate in the US, about 33% higher than the national average.

It is hoped that as more women know about the risks and symptoms of melanoma, cases will be diagnosed at an earlier, more curable stage and mortality will decrease.

Figure 17. Female Melanoma Mortality Trends for Massachusetts, 1982-1995 and United States, 1982-1994



Melanoma Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	1.8	2.1	1.5	1.4	1.6	1.5	2.1	2.0	2.4	1.4	2.3	1.8	1.9	2.0
US	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	

OVARIAN CANCER

RISK FACTORS

Ovarian Cancer Risk Factors:

- Growing older (Most women diagnosed with ovarian cancer are between the ages of 40 and 70.)
- Never giving birth
- First pregnancy after age 30
- White race
- Personal history of endometrial (lining of the uterus), colon or breast cancer
- Family history of ovarian cancer (If your mother, sister or daughter has had ovarian cancer, the risk of your developing ovarian cancer at some point in your life is about 5% higher than a woman with no such family history.)
- Having one of three inherited ovarian cancer conditions:
 - breast-ovarian cancer syndrome
 - site-specific ovarian cancer syndrome
 - hereditary nonpolyposis colorectal cancer or Lynch II syndrome (includes early-onset colorectal cancer, endometrial cancer, breast cancer and ovarian cancer)
- Use of talc powder in the perineal or external genitalia area

Possible Risk Factor:

- Fertility drugs

PREVENTION

To Reduce the Risk of Ovarian Cancer:

- Use oral contraceptives (the "pill") for five years
- Increase physical activity
- Do not use talc powder in the perineal or external genitalia area

Women with a strong family history of ovarian cancer (two or more first-degree relatives, such as mother, sisters or daughters) may have hereditary ovarian cancer syndrome. These women should discuss their history and be counseled by a gynecologic oncologist (a doctor who specializes in cancers of the reproductive organs, such as ovaries or uterus) or other qualified

specialist. Some doctors suggest that a woman who has hereditary ovarian cancer syndrome should consider having a *prophylactic oophorectomy* (taking out the ovaries before cancer is diagnosed) after she has finished having her children.

SCREENING

There is no screening test recommended for the general public.

All women should have a complete family health history taken by a doctor who knows about the risks associated with ovarian cancer. All women age 40 and older should have a full lower body exam each year, including a pelvic (internal) and rectal (anal) exam as a part of a routine medical check-up.

SYMPTOMS

There are usually **no early symptoms** of ovarian cancer, although some abdominal or pelvic pain or discomfort, without any unusual bleeding or discharge, may be present. Fluid in the abdomen may cause bloating and clothes might feel tight.

Late Warning Signs of Ovarian Cancer:

- Bleeding that is not part of a normal period (menstruation)
- Gas
- Diarrhea (very loose bowel movements)
- Constipation (infrequent bowel movements)
- Constant need to urinate (go to the bathroom)
- Stomach problems such as nausea, vomiting or indigestion
- Back pain
- Tiredness
- Unaccountable weight loss or gain -- losing or gaining weight without trying

DETECTION

Palpation (using the hands to feel for unusual lumps or masses) during an internal exam, with *transvaginal ultrasonography* (TVS) (use of sound waves to create a picture) and a CA-125 blood test are methods used to help diagnose ovarian cancer.

For diagnosis, a biopsy is required. This can be done through a *laparoscopy* or a *laparotomy*. Laparoscopy involves the insertion of a lighted scope (*laparoscope*) through a tiny cut in the abdomen in order to view the abdominal organs. The surgeon then take tissue samples to

examine under a microscope. A *laparotomy* (surgically opening the abdomen in order to look at the abdominal organs and take tissue samples) allows for the removal of the complete tumor and, if it is cancerous, for definitive staging.

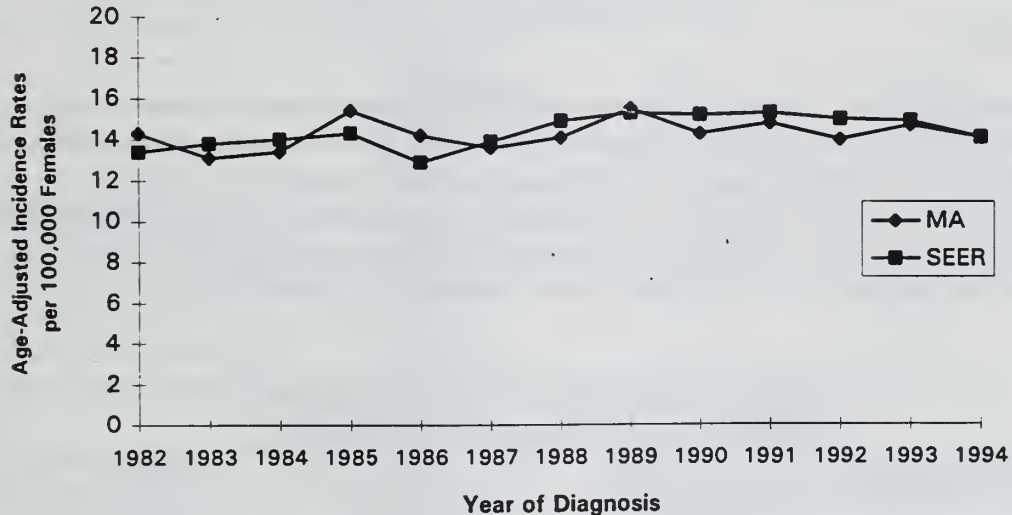
INCIDENCE

Based on national data, the average woman has approximately a 1.8% lifetime risk of developing ovarian cancer, or about a one in 57 chance. The risk for a white woman is about the same as the average (1.9%, or one in 54), while a black woman has a lower risk, one in 87.

Between 1982 and 1994, ovarian cancer was the fifth most common cancer in Massachusetts women, accounting for 7,004 incident cases (3.9% of all newly diagnosed cancers) -- more than 500 women a year. In 1994, 549 women were diagnosed with ovarian cancer, an age-adjusted incidence rate of 14.1 per 100,000.

No consistent increase or decrease in the incidence of ovarian cancer has occurred among Massachusetts or SEER females since 1982. Massachusetts incidence rates tend to be about the same as SEER rates (also 14.1 per 100,000 in 1994).

Figure 18. Ovarian Cancer Incidence Trends for Massachusetts, 1982-1994 and SEER Areas, 1982-1994

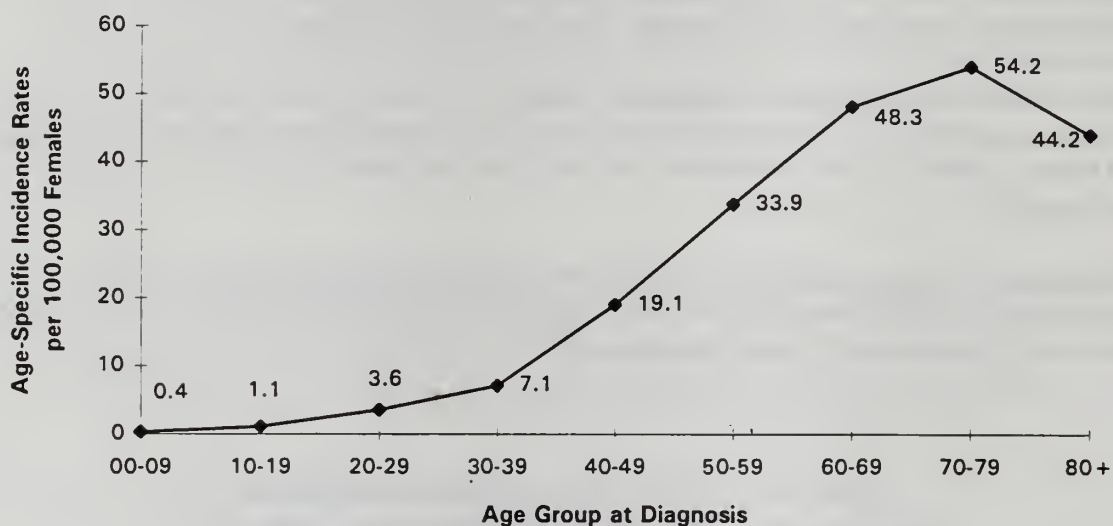


Ovarian Cancer Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	14.3	13.1	13.4	15.4	14.2	13.6	14.1	15.5	14.3	14.8	14.0	14.7	14.1
SEER	13.4	13.8	14.0	14.3	12.9	13.9	14.9	15.3	15.2	15.3	15.0	14.9	14.1

The incidence of ovarian cancer steadily increases with age, with the highest incidence among Massachusetts women aged 70-79 (54.2 per 100,000), then decreases to about 44 per 100,000 in women aged 80 and older.

**Figure 19. Rate of Ovarian Cancer by Age Group
Massachusetts, 1990-1994**



STAGING

As noted earlier, ovarian cancer is a particularly difficult cancer to detect at an early stage because there are few early signs or symptoms. Fewer than 30% of ovarian cancers are detected at a localized stage, when there is the best chance of successful treatment. A majority are detected only after they have spread to either nearby or distant parts of the body. Nevertheless, the proportion of cases diagnosed at an early stage has increased slightly in recent years, with a corresponding decrease in the proportion of cases diagnosed at a distant stage.

**Table 13. Ovarian Cancer Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	0.2 %
Localized (in one spot)	22.1 %	21.1 %	28.3 %
Regional (spread to some nearby areas)	22.3 %	27.9 %	28.4 %
Distant (spread into other parts of the body)	44.1 %	39.5 %	34.2 %
Unstaged (a stage can't be assigned)	11.5 %	11.6 %	8.9 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

For early stage ovarian cancer, treatment includes an *oophorectomy* -- surgically removing the ovaries and normal tissue around them, the fallopian tubes (the tubes connecting the ovaries and the uterus) and the uterus. The fatty tissue connected to the adjacent large intestine (bowel) may also be removed. In addition, chemotherapy, biologic therapy and radiation may also be used. For more advanced stages, additional surgery, chemotherapy and radiation may be used.

SURVIVAL

Survival rates for ovarian cancer have increased slightly over time, to about 46%. Overall survival is significantly better for women younger than 65 than for women age 65 and older, with survival rates about twice as high in younger women. There is little difference in survival by race.

Table 14 at a glance:

- Survival rates are poorer for women diagnosed at later stages.
- Survival rates for black women and white women are about the same, except for older black women, who have the poorest survival.
- Younger women have better survival rates than older women.

Table 14. Ovarian Cancer 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	46.4 %	46.5 %	41.9 %
By Stage at Diagnosis:			
Localized (in one spot)	92.6 %	92.9 %	87.7 %
Regional (spread to some nearby areas)	54.7 %	54.6 %	57.1 % +
Distant (spread into other parts of the body)	25.3 %	25.4 %	23.9 %
By Age at Diagnosis:			
Under 65	58.5 %	58.9 %	53.3 %
65 and over	28.9 %	29.1 %	24.1 %

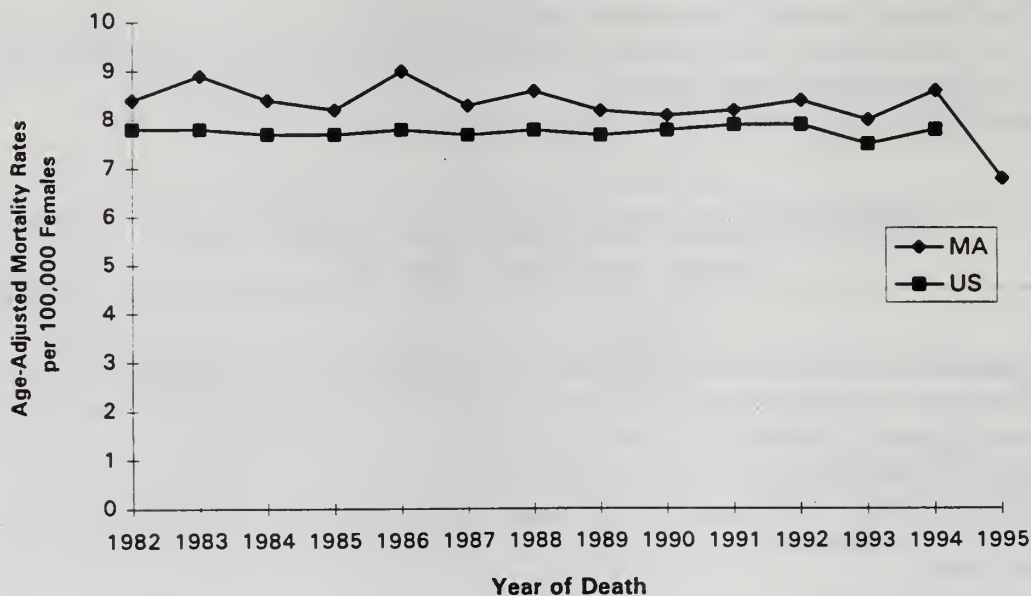
+ This rate may not be accurate because of the small number of cases in this category.

MORTALITY

Between 1982 and 1995, 4,781 women in Massachusetts died of ovarian cancer, an average of 342 per year. Although ovarian cancer is the fifth most common type of cancer diagnosed, it has the fourth highest death rate. Until 1995, mortality rates remained fairly constant. In 1995, the mortality rate decreased to 6.8 per 100,000, a decline of 21% from the 1994 rate. This may be in part reflective of the increasing proportion of cases diagnosed at an early stage noted previously. It is too soon to tell whether this decline in mortality will continue, however.

Nationally, rates have remained steady, at about 7.8 cases per 100,000. For the period 1990-1994, Massachusetts' ovarian cancer mortality rate was eleventh highest in the US, at 8.3 per 100,000, and was 6.4% higher than the US rate for that period.

**Figure 20. Ovarian Cancer Mortality Trends for
Massachusetts, 1982-1995 and United States, 1982-1994**



Ovarian Cancer Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	8.4	8.9	8.4	8.2	9.0	8.3	8.6	8.2	8.1	8.2	8.4	8.0	8.6	6.8
US	7.8	7.8	7.7	7.7	7.8	7.7	7.8	7.7	7.8	7.9	7.9	7.5	7.8	

UTERINE CANCER *

RISK FACTORS

Uterine Cancer Risk Factors:

- Growing older (Most uterine cancer is found in women aged 50 to 75.)
- Family history of uterine cancer
- Being more than 20 pounds overweight (The risk of uterine cancer is 9 times greater in women 50 pounds or more overweight.)
- Never giving birth
- Presence of estrogen-producing ovarian tumors
- Postmenopausal (change of life) use of estrogen without progesterone (The risk of developing uterine cancer increases after 2 to 4 years' use and with large doses of estrogen.)
- Tamoxifen (a drug given to women who have had breast cancer to lower the risk of recurrence)
- Late menopause (change of life after age 55)
- Eating a diet high in fatty foods
- Hypertension (high blood pressure)
- Diabetes (high blood sugar)
- Gallbladder disease
- Chronic anovulation (ovaries do not produce eggs)
- Menstrual problems
- Radiation therapy to the pelvis
- Cysts or tumors on the ovaries

* Cancer of the uterus is also called *endometrial cancer*, and refers to cancer of the lining of the uterus or womb.

Note: This section does not include uterine sarcoma.

PREVENTION

To Reduce the Risk of Uterine Cancer:

- If you are taking estrogen postmenopausally (after the change of life), ask your doctor about combination hormone replacement therapy (estrogen combined with progesterone)
- Attain and maintain recommended weight
- Eat a low-fat diet

SCREENING

There is no screening test for uterine cancer. The Pap test, which is used to find cervical cancer, finds fewer than half of endometrial (uterine) cancers.

SYMPTOMS

Warning Signs of Uterine Cancer:

- Abnormal bleeding, especially around or after menopause (the change of life).
- Bleeding between menstrual periods
- Lower abdominal and back pain

See your doctor if you have any of these symptoms.

Note: Fibroids (noncancerous growths composed mostly of muscle and connective tissue), vaginal infections and other noncancerous conditions may also cause these symptoms. This is why it's important to see your doctor.

DETECTION

During a pelvic exam, cells can be removed to be looked at under a microscope.

Postmenopausal bleeding (uterine bleeding after the change of life, particularly if within 6 months of when your period stops) should be thoroughly investigated. Your doctor may perform an *endometrial biopsy* for review of the tissue under a microscope. This can be done at the doctor's office. The doctor may also perform a *dilatation and curettage* (D&C), which involves scraping of the wall of the uterus.

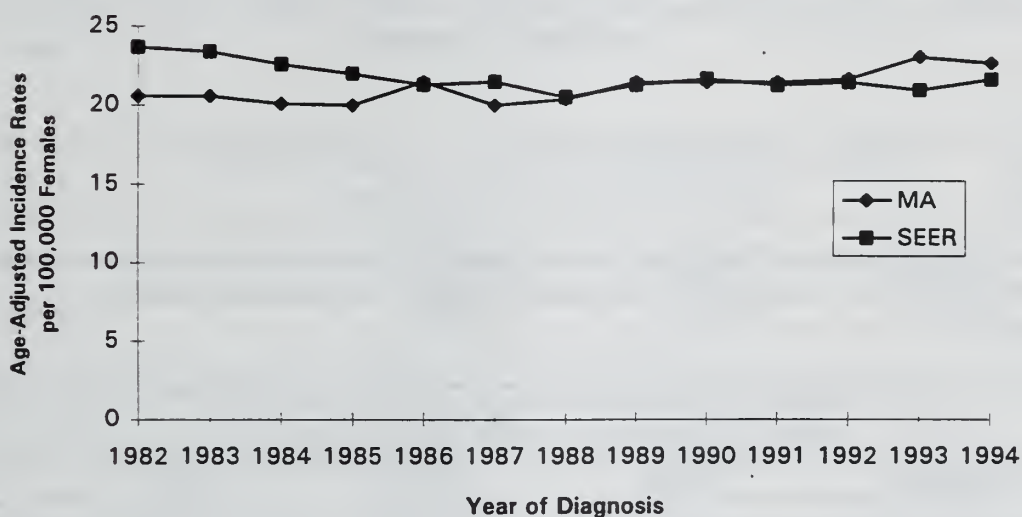
INCIDENCE

Based on national data, the average woman has approximately a 2.7% lifetime risk of developing invasive uterine cancer (about 1 in 38). The risk for a white woman is about the same as the average (about 1 in 35, or 2.8%), while a black woman has a lower risk, about one in 61 (1.6%).

Among Massachusetts females between 1982 and 1994, uterine cancer was the fourth most common cancer diagnosed, accounting for 5.8% of all newly diagnosed cancers (10,432 new cases) -- about 800 cases a year. In 1994, 868 women were diagnosed with uterine cancer, for an age-adjusted incidence rate of 22.7 per 100,000.

Uterine cancer incidence has declined about 8% in the SEER areas since 1982, decreasing from 23.7 per 100,000 in 1982 to 21.7 per 100,000 in 1994. In Massachusetts, there was no consistent decrease or increase in incidence from 1982 through 1992, and a small increase in 1993 and 1994. Massachusetts rates have been slightly higher than SEER rates since 1991.

Figure 21. Uterine Cancer Incidence Trends for Massachusetts, 1982-1994 and SEER Areas, 1982-1994

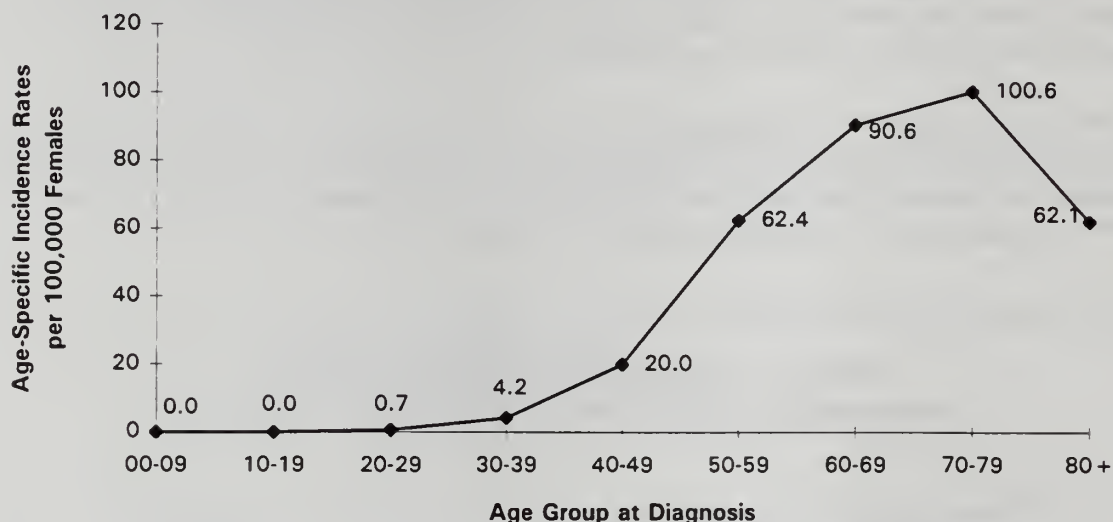


Uterine Cancer Age-Adjusted Incidence Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MA	20.6	20.6	20.1	20.0	21.5	20.0	20.4	21.5	21.5	21.5	21.7	23.1	22.7
SEER	23.7	23.4	22.6	22.0	21.3	21.5	20.5	21.3	21.7	21.3	21.5	21.0	21.7

The incidence of uterine cancer is highest in women aged 70-79, about 100 cases per 100,000, then decreases among women aged 80 and older.

**Figure 22. Rate of Uterine Cancer by Age Group
Massachusetts, 1990-1994**



STAGING

In 1992, nearly three-quarters of the cases of uterine cancer diagnosed in Massachusetts women were detected while *in situ* or localized, when most treatable. This was an increase from previous years.

**Table 15. Uterine Cancer Stage at Diagnosis
Massachusetts Females, 1982, 1987 and 1992**

Stage at Diagnosis:	1982	1987	1992
<i>In situ</i>	--- *	--- *	2.2 %
Localized (in one spot)	65.7 %	70.1 %	71.1 %
Regional (spread to some nearby areas)	15.2 %	15.2 %	12.6 %
Distant (spread into other parts of the body)	5.5 %	5.3 %	5.9 %
Unstaged (a stage can't be assigned)	13.5 %	9.5 %	8.2 %

* *In situ* cancers were not reported to the Massachusetts Cancer Registry prior to 1992.

TREATMENT

Cancer confined to the uterus can be treated with a *hysterectomy* (an operation to take out the uterus). Cancer diagnosed at a later stage may require more extensive surgery, radiation, hormone therapy and/or chemotherapy.

SURVIVAL

Five-year survival among women diagnosed with uterine cancer is about 84% overall. This rate is slightly better for younger women than for older women. By race, white women exhibit far better survival rates than black women, regardless of age or stage at diagnosis. The difference in survival rates between black women and white women increases both with age and with advancing stage. For example, substantial differences are seen among women aged 65 and older, in which five-year survival rates for white women (82.1%) are nearly twice those seen for black women (44.2%).

Table 16 at a glance:

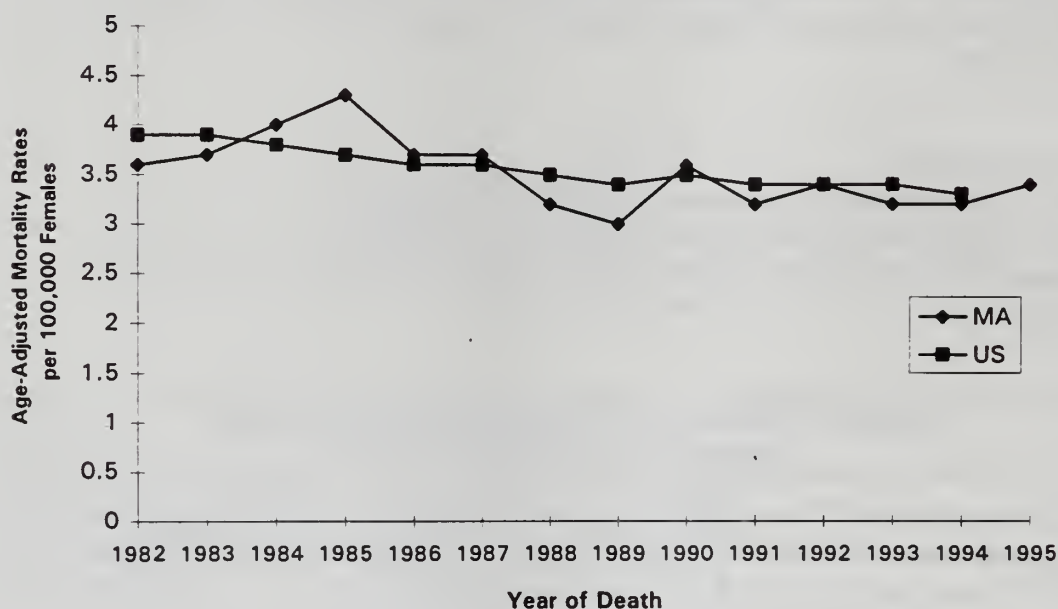
- Survival rates are poorer for women diagnosed at later stages.
- White women have much better survival rates than black women.
- Younger women have better survival rates than older women, especially among black women.

Table 16. Uterine Cancer 5-Year Relative Survival Rates Females, United States, 1986-1993			
	Race:		
	All Races	White	Black
Overall:	84.0 %	85.9 %	55.3 %
By Stage at Diagnosis:			
Localized (in one spot)	95.5 %	96.3 %	81.1 %
Regional (spread to some nearby areas)	66.1 %	69.3 %	38.4 %
Distant (spread into other parts of the body)	26.8 %	29.0 %	11.4 %
By Age at Diagnosis:			
Under 65	88.1 %	89.8 %	65.6 %
65 and over	79.9 %	82.1 %	44.2 %

MORTALITY

Between 1982 and 1995, 2,291 Massachusetts women died of uterine cancer, about 164 per year. In 1995, 171 women died, an age-adjusted mortality rate of 3.4 per 100,000. Rates in Massachusetts have fluctuated over time, probably due to the small number of deaths from uterine cancer. A slight decrease in the mortality rate has been seen nationally, with a 15% decline between 1982 (3.9 per 100,000) and 1994 (3.3 per 100,000). On average, the rates for Massachusetts are about the same as national rates.

Figure 23. Uterine Cancer Mortality Trends for Massachusetts, 1982-1995 and United States, 1982-1994



Uterine Cancer Age-Adjusted Mortality Rates (per 100,000 females):

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
MA	3.6	3.7	4.0	4.3	3.7	3.7	3.2	3.0	3.6	3.2	3.4	3.2	3.2	3.4
US	3.9	3.9	3.8	3.7	3.6	3.6	3.5	3.4	3.5	3.4	3.4	3.4	3.3	

RESOURCES

American Cancer Society, Massachusetts Division
(includes information on local free and low-cost cancer screenings)
1-800-ACS-2345

Cancer Information Service (National Cancer Institute)
1-800-4-CANCER

Smoker's Quitline, Massachusetts Tobacco Control Program and the
American Cancer Society
1-800-TRY-TO-STOP (1-800-879-8678) in English
1-800-8-DEJALO (1-800-833-5256) in Spanish
1-800-TDD-1477 (1-800-833-1477) for the hearing impaired

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GLOSSARY

Here are some definitions which may help you understand and use the information in this report. Many of these terms apply to all sorts of diseases and health conditions, but we'll use breast cancer as an example.

Incidence rate: the number of new cases of a disease in a given size population in a given time period (for example, the number of new cases of breast cancer in a group of women in a given time period). Usually, an incidence rate is given as the number of new cases per 100,000 women per year.

For example: an annual breast cancer incidence rate of 106 per 100,000 means that for every 100,000 women there were 106 new cases of breast cancer diagnosed per year.

Mortality rate (death rate): the number of deaths from a disease in a given size population in a given time period. Like incidence rates, mortality rates are usually given as the number of deaths per 100,000 people or women per year.

For example: an annual breast cancer mortality rate of 35 per 100,000 means that for every 100,000 women there were 35 deaths from breast cancer per year.

Age-specific rates: these rates are used when we're only looking at cancers diagnosed, or deaths, in people in a particular age range in a given time period. We can use age-specific rates to look at how cancer incidence changes with age. Age-specific rates are calculated by dividing the number of people in an age group who have a particular condition by the number of people in that same age group overall. The rate is generally given as a rate per 100,000.

For example: an age-specific breast cancer rate for women aged 70-79 of 491.7 per 100,000 means that there were 491.7 cases of breast cancer diagnosed in women aged 70-79 for every 100,000 women aged 70-79 in the population for a given time period (here, 1990 through 1994).

Age-adjusted rates: The risk of developing or dying from cancer often varies by age. For example, older women are more likely to develop breast cancer than younger women. This makes a difference when we're comparing cancer cases or deaths between communities or states, between Massachusetts and the United States as a whole, or over time. Age-adjustment is a way to take into account the fact that different areas have different age structures -- some communities may have a lot of retirees, while others may be "college towns" with many students in their 20s. Without taking into account these different age structures, we can't be sure if a community has a higher number of breast cancer cases because rates really are higher in that community, or just because there are more older women living there.

In this report, we don't compare cancer rates between different communities, but we do compare rates between Massachusetts and the national SEER program (the best estimate of US rates). It's important to use age-adjusted rates, so that we take into account differences between the age structure of Massachusetts and the US.

Age-adjusted rates are calculated by weighting the age-specific rates for a given year by the age distribution of a standard population. The weighted age-specific rates are then added to produce the adjusted rate for all ages combined. The 1970 U.S. population is used as the standard in this document for consistency with data published by SEER.

For example: the Massachusetts 1992 age-adjusted female breast cancer incidence rate was 116.5 per 100,000, which means that there were 116.5 cases of breast cancer diagnosed for each 100,000 women in Massachusetts. The SEER 1992 age-adjusted breast cancer incidence rate was 111.2 per 100,000, which means that there were 111.2 cases of breast cancer diagnosed for each 100,000 women in the SEER areas. Because these are both age-adjusted rates, we can directly compare them and determine that the incidence of breast cancer was higher in Massachusetts than in the SEER areas in 1992.

Survival or Relative Survival: the percentage of people diagnosed with a disease who are still alive a certain time later. The figure most often given is for 5-year survival, which means the proportion of people who are still alive five years after diagnosis. This figure includes all people still alive, regardless of their health -- some will have no sign of disease, while others may suffer from severe disease or disease which has spread (metastasized).

For example: a 5-year breast cancer survival rate of 80% means that 80% of women diagnosed with breast cancer are still alive five years later.

Risk or Lifetime Risk: the likelihood that a woman will develop cancer sometime in her life. This is a figure which is easy to misinterpret. For example, you may have heard that your risk of developing breast cancer is 1 in 8. This makes your likelihood of developing breast cancer sound much higher than it actually is. The "1 in 8" figure actually refers to women aged 85 and older -- a woman who has reached the age of 85 or older has had a 1 in 8 chance of being diagnosed with breast cancer at some point during her life.

The risk of developing most cancers varies with age, and may also vary by race. The likelihood of developing cancer also varies with other risk factors a woman may have, such as a family history of that cancer, medical history or lifestyle.

Note: risks may also be given as percentages. For example, a 1 in 8 risk is the same as a 12.5% risk -- 1 divided by 8.

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